THE NATURE OF MANAGERIAL INVOLVEMENT IN STRATEGIC INVESTMENT DECISIONS

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Abstract

The role of managerial judgement and involvement in strategic investment decisions (SIDs) has received limited attention in Management Accounting and Finance literature. This study inquired into the nature of managerial involvement, individually and collectively, in making SIDs. It validates and extends Harris' (1999) investment appraisal model; builds on psychology concepts (*heuristics*, *framing* and *group consensus*), that are employed by managers in decision making, to identify factors that enhance/enable or inhibit managerial judgement and involvement in SIDs; and explores the nature of managerial involvement in SID making.

The study was conducted in two phases. First, a cross-sectional survey of 105 respondents from 70 companies representing 27 industries, measured the extent of managerial participation in SID making and the influence of the above psychological factors. The survey data was analysed using Principal Component Analysis to identify the dominant or key influencing factors, which were further investigated using in-depth highly-structured interviews and direct observation in a total of six case studies involving four multinational corporations (MNCs) and two medium-sized enterprises (MSEs).

The findings of the study confirm that the managers within the formal SID making process enrich objective (organisational context) practices with subjective insights. The study illustrates that there is a common approach to SID making across organisations. This common approach can provide a structure for new and developing organisations. However, there is variation in SID practice dependent upon organisational context and corporate culture (characterised by size and SID types) and between organisations (characterised by industry types). Personal attributes of managers impact on managerial judgement and involvement in SID making. The author suggests that establishing and organising SID teams that harness unique personal attributes can lead to optimal group decision during SID. The study recognises that explicit and tacit managerial knowledge (acquired, constructed and nurtured to maturity through managerial experience) impact on managers' judgement and involvement in SIDs. It also identifies aspects of organisational context and culture, and individual, group and socio-political processes that might enhance/enable or inhibit managerial judgement and involvement in SIDs.

The study reveals that for managers, the level of managerial involvement in SIDs is high across all sectors, though it is more idiosyncratic in MSEs. This highlights the insufficiency of the objective processes of SID making, which needs to be augmented by managerial judgement, exercised individually and collectively. This study extends the extant scope of our understanding of SID making, beyond the dominant 'technical' emphasis on the application of discounted cash flow techniques for the purpose of SIDs.

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List of Abbreviations

AMT	Advanced Manufacturing Technology
ANOVA	Analysis of Variance
BCG	Boston Consulting Group
CEO	Chief Executive Officer
CFO	Chief Finance Officer
CHP	Combined Heat & Power
CIMA	The Chartered Institute of Management Accountants
CO_2	Carbon dioxide
DCF	Discounted Cash Flow
DMU	De Montfort University
DPA	Data Protection Act
DSS	Decision Support Software
EU	European Union
EVA	Economic Value Added
FTSE	Financial Times Stock Exchange Index
GM	General Motors
GP	General Practitioner
GPD	Group Policy Document
HDC	Higher Degree Committee
HMSO	Her Majesty Stationery Office
ICT	Information Communications Technology
IMF	International Monetary Fund
IRR	Internal rate of return
IT	Information Technology
KMO	Kaiser-Meyer-Olkin Measure
LSE	London Stock Exchange
Ltd	Limited

M & A	Merger and Acquisition
MA	Management Accountant
MBA	Masters in Business Administration
MD	Managing Director
MDec	Managerial Decision Process
MDM	Market Data Management
MDS	Meter & Data System
MISID	Managerial Involvement in Strategic Investment Decisions
MNC	Multinational Corporation
MSE	Medium Sized Enterprise
MW	Megawatts
NHS	National Health Service
NPD	New Product Development
NPV	Net Present Value
NYSE	New York Stock Exchange
PCT	Primary Care Trust
PDF	Portable Document Format
plc	Public Limited Company
R^2	Squared Multiple Correlation
ROCE	Return on Capital Employed
SID	Strategic Investment Decision
SME	Small & Medium-sized Enterprises
SPSS	Statistical Package for the Social Sciences
SWOT	Strengths, Weaknesses, Opportunities and Threats
UK	United Kingdom
US	United States
USA	United States of America

Glossary of Key Terms Used

Change Management	A structured approach to change in an organisation used to effectively cope with transition in the organisation from the state before a project to a state brought about by a project. Managing change – making changes brought about by a project in a considered and managed proficient approach.
Consensus	The group process of sharing interpretations of the proposal and its assumptions in reaching agreement as to the decision.
Enhancers / Enablers	Aspects of an identified factor, which encourage, elevate, promote or facilitate managerial judgement and involvement in SIDs.
Framing	The way that information about a prospective project is presented and how managers bring their preferences to bear in the processing of that information; displaying bias towards initial information (primacy), more recent information (recency), or sticking to the status quo. Framing is also about the individuals – how they respond to information presented to them by others.
Heuristics	A set of simplifying assumptions by which managers can draw on their knowledge and experience to form intuitive judgements under conditions of uncertainty. Heuristics is about the individual managers – how they, drawing on knowledge and experience, make sense of the world surrounding strategic investment decisions.
Inhibitors	Aspects of the factor that discourage, retard or stop managerial judgement and involvement in SIDs.
Knowledge Management	The identification and mapping of intellectual assets, creation of new knowledge for competitive advantage, representation and sharing of best practice, and distribution i.e. making corporate information accessible. It refers to transfer of lessons learnt between projects and the general development of collaborative practices. Technology may be used to facilitate knowledge management.

Management Accountant	"[R]efers to an individual who has a specialist accounting training and works in an organisation that is not primarily concerned with providing auditing and taxation services, rather than someone predominantly concerned with practising the discipline of management accounting" (Cooper & Dart, 2009).
Manager	A person who controls resources and expenditure. A person responsible for planning, directing, monitoring and controlling people and their work, and taking corrective action when necessary. In larger firms, a manager may only recommend course of action to be taken by the next tier of management. A manager's title reflects the management function the manager is responsible for.
Managerial Involvement	Includes proactive communications with other managers, confronting ambiguity & fuzziness, seeking clarification, modifying ideas, exercising managerial judgement, and the manner in which senior & junior managers relate during SID making.
Nature of Managerial Involvement	Refers to nature of managerial activities with respect to the constitution of SID teams, existing systems and usual order of events during the SID process, and the characteristics of managerial judgement.
Strategic Investment Decisions (SIDs)	Decisions concerning long-term investments in assets e.g. purchase of new buildings, technology or equipment, business ventures, or knowledge acquisition in pursuance of the organisations' strategic objectives.
Top Management	Highest ranking executives responsible for the smooth running of the entire business organisation and therefore the success or failure of the firm. Functional titles of top management include: chairman, chief executive officer, managing director, president, executive directors, and executive vice-presidents. Top management is responsible for translating company mission, usually formulated by the Board of Directors, into goals, objectives, and strategies. It makes decisions that affect everyone in the company.

Chapter One

Introduction

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Introduction

General Overview

Managers in business organisations make various decisions in the course of their duties, most of them with financial consequences. Among these the investment decisions are most challenging. **Strategic investment decisions (SIDs)** affect the future direction of the organisation in a fundamental way. Indeed future success of an enterprise depends on investment decisions the enterprise makes today (Bierman & Smidt 1988; 1993).

For the purpose of this study SIDs are defined as: *decisions concerning long-term investments in assets e.g. purchase of new buildings, technology or equipment, business ventures, or knowledge acquisition in pursuance of the organisation's strategic objectives*. Investment decisions have increasingly involved more sophisticated analytic techniques, e.g. discounted cash flow techniques of Net Present Value (NPV) and Internal Rate of Return (IRR), in evaluating proposed investments. These evaluations have been made easier with the adoption of information technology (IT) and availability of evaluation tools such as spreadsheets.

It is therefore not surprising that various researchers, particularly in the discipline of Accounting and Finance, have given much attention to the investment appraisal aspect of the SID making, at the expense of behavioural and organisational context, which may be equally important. Haynes & Solomon (1962), King (1975), Bower (1986), Butler *et al.* (1993) and Harris (1999, 2000) have argued that appraisal is only one of the stages of the SID making process. Indeed Lumby & Jones (2003:6) have noted that the "search process" (i.e. seeking out investment ideas) stage of the SID making process is enormously important. Since the SID making process involves individuals within organisations, the interactions between such individuals should be considered equally important. This study focuses on the nature of involvement of managers in SID making.

This chapter presents the problem that this study addresses in **Section 1.1**, the rationale of the study in **Section 1.2**, and discusses the theoretical considerations in **Section 1.3**. Then in **Section 1.4** the methodology and framework for analysis used is summarised before a summary of the significance of the study in **Section 1.5** and conclusion of the chapter in **Section 1.6**.

1.1 Problem Statement

Traditionally, managers are expected to be involved in *planning*, *control* and *decision making*. Cooke & Slack (1991) noted that the media, in particular, television usually presents the business director and the top manager as almost entirely occupied with "making decisions" and "taking decisive actions". Managers are required to anticipate future events well in advance and to consider the options available to them in preparing the organisation to face the future events as they occur. The media often take good decision-making as synonymous with good management. They judge good and bad decisions with the benefit of hindsight based on how the decision had been made in the first place. The managers' role is to apply **experience** and **knowledge of the industry**, **weigh up the risk involved** and **make the decision** (Proctor, 2006). However, activities of managers when performing this important role have not been widely researched.

Earlier research into strategic investment focussed on the economics of capital budgeting, the agency relationship between directors and shareholders, and uncertainty (Haka, 2007). The nature of managerial involvement in strategic investment decisions is an area that has to date received limited attention from scholars in Management Accounting and Finance. This was the basis of the curiosity that led to the conduct of this research study. Since managerial activities take place within the organisation, *managerial involvement* should not be investigated in isolation but within such organisational context: thus the aim of the study and research questions discussed below.

For the purpose of this study, **managerial involvement** includes *proactive communications with other managers, confronting ambiguity and fuzziness, seeking clarification, modifying ideas, exercising managerial judgement, and the manner in which senior and junior managers relate during SID making*. The **nature of managerial involvement** as used in this study refers to *nature of managerial activities with respect to the constitution of SID teams, existing systems and usual order of events during the SID process, and the characteristics of managerial judgement*.

1.1.1 Aim of the study

The research aim of this study is therefore to investigate, for managers individually and collectively, the nature of managerial activities carried out during SID making in terms of:

- validation and extension of Harris' (1999) investment appraisal model (**Appendix1**) to establish the nature of managers' involvement in the various stages of SID making;
- an extension of psychology work in management accounting i.e. the impact of psychological factors and application of heuristics, framing and consensus by managers exercising managerial judgement during SID making; and
- the nature of participation of managers, mainly with management accounting backgrounds, in strategic investment decisions and factors that might enhance/enable or inhibit such participation.

1.1.2 Research Questions

In order to achieve the aim of this study, it has been translated into the following research questions:

I. What stages does the SID process go through?
II. Are the stages of the SID process, similar across organisations? If not, how do they differ?
III. Who gets involved in SID making?
IV. When do managers get involved in the SID process and in which activities?
V. What do managers do during SID making?
VI. How do managers get involved in SID making?
VII. How do managers behave in SID making?
VIII. What influences the nature of involvement of the managers in SID making?

Questions I, III, IV and V were addressed during the survey phase of the study while questions II, VI, VII and VIII were addressed during the case study phase. The methodology undertaken and the research philosophy upon which it is based are briefly presented in **Section 1.4**.

1.2 Rationale and scope of the study

Decisions tend to open certain paths into the future, while closing others. An organisation's capacity to thrive in highly competitive business environment and markets is greatly dependent on its ability to revitalize itself through investments that match the organisation's business strategy and capability (i.e. **strategic investments)**. Strategic decision making is a key process that is of the utmost importance to any business organization irrespective of size. Previous researchers have looked at the subject of investment from a range of perspectives as discussed below, though the nature of managerial involvement during the SID making process has received very little attention.

Prior research discussed in **Chapter 2**, has tended to concentrate on the investment evaluation aspect of SID making, with the result that other aspects e.g. human involvement and behavioural aspects have been thinly investigated. Since SIDs involve risk and uncertainty, managers often have to rely on subjective judgements. However various authors (e.g. Butler *et al.*, 1993; Harris, 1999, 2000; Bazerman, 2006) have observed that subjective judgements are often not part of prescribed decision making processes. Hickson *et al*. (1986) noted that decisions usually involve configurations of influence among participants, and SID making is no exception. The patterns of influence, however, are a function of **individual interests** and **organisational power** of those involved in the SID making process. The level of influence is thus related to the individuals who are **involved** in the process. Who among them is organisationally more powerful and the extent of external influence, and how those who wield authority use their power. Moreover as Lamont (2007) observed, decision making in organisations is a complex blend of rational and intuitive judgements, and SID making is no exception. There is usually an abundance

of data produced at the investment appraisal stage of SID; however managers must make sense of the data and make a decision. Literature on SID making and financial management have largely neglected this aspect.

In response to this gap in the literature (see **Chapter 2**) the author embarked on this study, with a view to learn more about what actually goes on in organisations during SID making. The focus was particularly on the nature of involvement of the various managers in SID. The overall aim was to gain an insight into the level of involvement of the participants and explore factors (contextual or otherwise) that may affect this level of involvement. The SID making process goes through identifiable stages, thus some functions are more suited to be performed at certain stage(s) than others. The study also attempted to identify factors that might enhance/enable or inhibit managerial judgement and involvement in SIDs.

Scope of the study: Strategic investment decision making has various aspects that can be researched. However, this study only examined the nature of managerial judgement and involvement in the context within which the SID making took place and the stages of the SID process across firms.

1.3 Theoretical consideration

> "Theory without practice is insufficient; practice unguided by theory is aimless."
>
> (Gutek, 1988: 1)

Theory is used to provide a theoretical lens to guide the study and raise the questions and important issues that the researcher investigated. The theoretical considerations discussed in this section include concepts, propositions and hypotheses linked in a systematic structure to allow explanation and prediction (Riahi-Belkaoui, 2004) of the aspects of the SID making investigated in this study. These provide the theoretical framework on which this research study was based and put it into perspective.

Formal theory to explain the nature of involvement of managers in SID making is lacking in literature on SID making. Instead various theories have been applied to explain and meet the needs of SID making, and to provide a framework for understanding and researching SID. Accordingly, this section presents a synopsis of theories in literature relevant to SID making. The theories justify questions included in the survey questionnaire and interview protocol as well as explain the SID process and stages. They also explain heuristics, framing, and consensus. The distinctions between them are not that clear-cut since each theory emphasises different dimensions of the same phenomenon of decision making.

Constructs, concepts and models of decision making and their interactions are used to provide explanations of strategic decision making phenomena and the underlying forces. These concepts and models are drawn from a variety of disciplines relevant to SIDs. SIDs are, however, made under conditions of risk and uncertainty. Literature on SID has for some time recognised that a theory gap exists when faced with SID making, and have tried to reconcile this gap by drawing upon theories and concepts of decision making from various disciplines (Harris & Emmanuel, 2000).

Most of the literature on SID making implicitly adopts scientific models of the decision making process as a foundation. However the body of literature also recognises that scientific models alone may not fully explain the decision making and borrows from other disciplines to bridge the theory gap. SID making is overtly interdisciplinary, explicitly and implicitly drawing from economic theories, finance theories, organisational theories, psychology theories, administrative theories etc. The interdisciplinary nature of SID making is shown in **Figures 1.1** and **1.2** and discussed further in **Chapter 2**. The focus of this study is on developing and integrating themes from behavioural sciences to provide new insights of strategic investment decisions for management accounting.

1.3.1 SID Making Context

Aspects of the SID making context considered here are: organisational operating and strategic contexts, and profile of participating managers.

Fig. 1.1 – The interdisciplinary nature of SID making

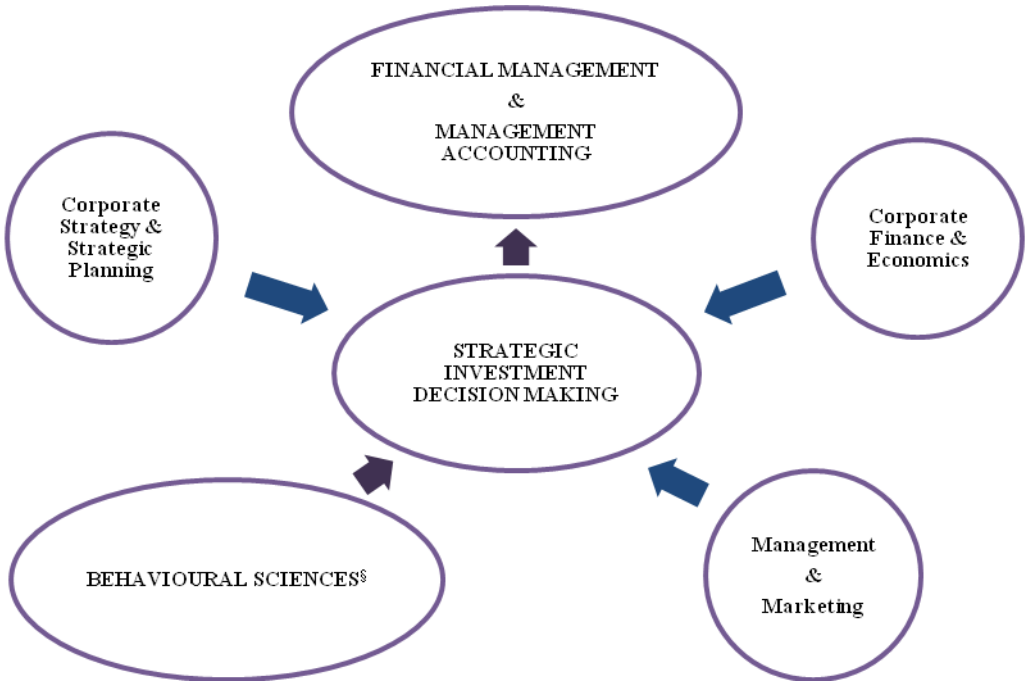
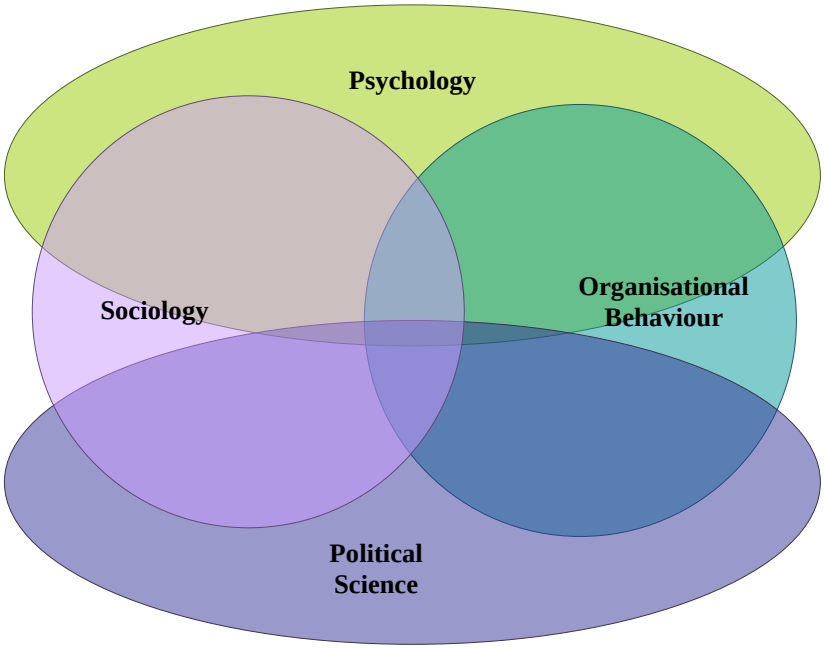


Fig. 1.2 – § Interaction among the behavioural sciences disciplines



Organisational Operating Context

The effects of operating context were incorporated in the study by considering the organisational structure. Burns & Stalker (1994), Lawrence & Lorsch (1986), Khandawalla (1977) and others have used the mechanistic-to-organic dimensions to classify firms according to organisational structure. Generally, mechanistic organisations would have features such as centralised decision making, strict adherence to formally prescribed rules and procedures, tightly controlled flow of information, and reporting and working relationships that are meticulous. In contrast, in an organic organisation, decision making would be decentralised, the organisation is flexible and adapt easily to changes, there is open communication within the organisation, and formal rules and procedures are not emphasised.

According to Frederickson (1986) a centralised structure would mean a concentration of the right to make decisions and control activities. A high degree of centralisation within a firm means that the important decisions are made at the top management level. He introduced the term 'formalisation', which he defined as the extent to which an organisation uses rules and procedures to prescribe behaviour such as the details on how, where, and by whom tasks are to be performed (*ibid.*). Undoubtedly, formalisation would restrict the activities of employees to pre-prescribed ones. Frederickson (*op cit.*) also introduced complexity, which describes the many, usually interrelated, parts of an organisation. Complexity can relate to the number of hierarchical levels, the span of control, or the geographical dispersion of operating sites, among others. The current research looks at which activities managers at different levels in the organisation, perform during SID making.

Miller (1987) noted that structural integration, which refers to the coordination of activities among the different specialisations within the firm, can either enhance or inhibit contacts between managers. The more integrated the firm, the easier are contacts between the experts within each department and also with the top level decision-makers.

Organisational Strategic Context

Firms' strategic directions are often conceptualised according to adaptation or aggressiveness towards the market (Miles & Snow, 1978; Conant *et al.*, 1990; Aragon-Sanchez & Sanchez-Marin, 2005; and Pleshko, 2007). Miles & Snow (*ibid.*), classified firms within an industry according to strategic orientation based on specific strategic options into four groups: prospectors, defenders, analysers or reactors. While prospectors, defenders and analysers have formal strategic directions, reactors do not. As noted by Zahra & Pearce (1990:751-752):

> "Defenders emphasize a narrow domain by controlling secure (and often premium) niches in their industries. They engage in little or no product / market development and stress efficiency of operations. Prospectors constitute the other end of the continuum, constantly seeking new opportunities and initiating product development. Analysers exhibit characteristics of both Defenders and Prospectors. Finally, Reactors do not follow a conscious or consistent strategy and are viewed as a dysfunctional organizational type".

Chandler (1962) and Patterson (1988) recognised that there is a strong theoretical link between successful organisational strategy and its alignment with the organisation's structure. In addition Pleshko (2007) shows a theoretical link between a firm's strategic direction and performance.

Profile of Participating Managers

SID making process is a management activity that takes place within an organisation. It is a function of a set of conditions and individuals. Decision making is described as "an incremental activity, involving many people throughout the organisational hierarchy, over an extended period of time" Pike & Neale (2003:230). However, there is less coverage of the profile of managers who get involved in SID making in SID literature. Malmendier & Tate (2005) related corporate investment decisions to *personal characteristics* of top decision makers in an organisation when studying CEO overconfidence during corporate investment decisions. They found out that observable CEO characteristics, other than overconfidence, could explain corporate decision making. These characteristics included *education background*, *employment background*, and *accumulation of titles within the firm*.

CEOs would be expected to be highly committed to good performance of their organisations because their personal wealth and the value of their human capital often depend on company performance. Accordingly, we would expect, the personal profile of all managers involved in SIDs to be important to SID making.

Bass (1983:100) considers the decision making process to include "activation of individuals and units, mobilization of others into coalition, negotiation with other units and coalitions and compromise, accommodation or consensus to reach final choice". The profile of participating managers, their cognition and decision making styles have, to date, not been thoroughly examined when studying SID making. Instead, SID research appears to have concentrated on CEOs and CFOs choice of investment appraisal techniques.

1.3.2 SID Process

Organisational research has examined capital budgeting processes, policies and practices, and admits the agency problem to SID research. A number of researchers e.g. King (1975), Northcott (1998), Harris (1999), Burke & Walker (2003) and Pike & Neale (2003), have found that investment appraisal or capital budgeting processes are multi-staged. They have developed frameworks of investment appraisal to suit the various aspects of capital budgeting they have studied. However, past research has not clarified all aspects of the SID making process. How do organisations of different sizes and from different industries vary in their SID making? How do managers act during SID making? What is the interplay among managers, SID environment and organisational structure? How does this interplay influence SID making?

1.3.3 Managerial Judgement

Experimental research has investigated the psychology of individual decision making, especially the phenomenon of *escalating commitment* (*a phenomenon where managers increase investment in a decision even though new evidence suggests that the decision was incorrect*), e.g. Staw (1981), Harrell & Harrison (1994), Ho & Vera-Munoz (2001), Cheng

et al. (2003) and Chang & Ho (2004). However, very little work has been done on the psychology of group decision making, how a group would respond to the uncertainty problem and how collective managerial judgement is achieved.

The concept of rationality has been widely applied to economics-based research on SIDs to assume that decision makers are rational when they make judgement. Simon (1957) identified three models of rationality: *economic man*, *social man* and *administrative man*. The *economic man* is one with a complete and consistent system of preferences. He is assumed to have all relevant information and is able to conduct intricate probability calculations and select options that are economically optimal. In contrast the *social man* considers human issues during decision making. He would acknowledge self-interest and the role that reward has to play in influencing managerial decisions. Conversely the *administrative man* is more expedient, completing sufficient analysis until a satisfactory outcome is found when making decisions. He acknowledges satisficing behaviour that simplifies and prioritises complexities of the real world. In comparison to the *economic man* the *social man* admits agency issue to the model of rationality and the *administrative man* might be influenced by concepts of market share, fair price and adequate rather than optimal profits.

However, there is a limit to rationality. (Simon, 1976) considered psychological and organisational influences on choice and recognised that personal preferences influence managerial judgement. This concept of bounded rationality was later applied to capital budgeting research. Samuelson & Zeckhauser (1988) looked at resistance of managers to abort projects (status quo bias) even when sunk costs are irrelevant. Staw (1976 & 1981) found that there is *escalating commitment* to a chosen course of action. However, the nature of managerial judgement and probable influences on exercise of judgement during SID making have not received much attention. Bazerman (2006) developed Simon's notions of bounded rationality further, introducing 'bounded awareness'. Recently, Slovic *et al.* (2007), Bazerman (*ibid.*) Finucane *et al.* (2000) recognized the use of *affect heuristic* during decision making.

The concept of cognition also plays an important role in managerial judgement. Schwenk (1988) noted that strategic cognition plays a very important role in the diagnosis of strategic issues and formulation of problems. In relation to the concept of cognition, intuitive decision making is more topical than any other concepts. Kahneman & Tversky (1982:124) define intuitive judgement as judgement reached through "an informal and unstructured mode of reasoning, without the use of analytic methods or deliberate calculation". It is based on the bright ideas arising from people's hunches (Emery, 2002) rather than a lot of facts and figures. However, Salton (2000) posited that people find it very difficult to process information without all the facts and are therefore uncomfortable with intuition as a decision making strategy.

Nevertheless, during SID making managers need to apply a mix of logic and intuition, i.e. '*whole-brain thinking*' (Emery, *op cit.*) to help them make SIDs in an increasingly complex business environment. Simon (1957, 1976), Staw (1976, 1981), Schwenk (1988) and Kahneman & Tversky (1982) provide the background theories to suggest that managers' strategic cognition and key psychological concepts are relevant to SID making. Three main concepts of *heuristics*, *framing* and *consensus* informed by the cognitive psychology and organisational behaviour literature are potentially important when managers exercise managerial judgement during SIDs.

Heuristics

The concept of heuristics deals with the psychological influences on judgement under uncertainty (Tversky & Kahneman, 1974). It is the application of experience-derived knowledge to a problem i.e. the use of heuristic. Heuristic is derived from the Greek word '***heuriskein***', which means 'to discover', and it is basically a 'rule-of-thumb', or 'commonsense rule(s)', or 'line of reasoning' derived from experience and intended to increase the chances of solving a problem. It pertains to the process of acquisition of knowledge by intelligent guesswork rather than by following some pre-established procedure. There is evidence in behavioural decision theory that cognitive heuristics and

biases influence strategic decision making (Schwenk, 1988, 1984; Slovic *et al.*, 1977; Tversky & Kahneman, 1974; and Gilovich *et al.*, 2002).

Generally, strategic decision problems are complex and strategic decision makers have cognitive limitations (Simon 1957 and 1976). Therefore, frequently there is need for simplification of these problems; however in the process of such simplification, heuristics and biases may be introduced. Researchers have recognised a number of heuristics (rules-of-thumb), which decision makers use to simplify complex problems. Barnes (1984) and Tversky & Kahneman (1974) identified that when decision makers make decisions under uncertainty, they employ heuristics and biases may occur. The simplification of complex problems through rule-of-thumb instead of solving the problem by constructing a sophisticated mathematical model is common during decision making.

Normally, heuristics that decision makers use are based on their own knowledge and experience (Tversky & Kahneman, 1974). They evaluate new opportunities by comparing them with a reference point from such personal knowledge and experience, a process referred to as *anchoring* and *adjustment*. The decision maker would make estimates by reference to an initial value (*the anchor*) and then add or subtract an *adjustment* to reach a new position. Anchoring and adjustment might be applied in SID making by organisations that invest routinely in projects of a similar type. However, if the SID process is a rational choice process, then it can be argued that use of heuristics could ignore crucial new information and therefore heuristics would be detrimental. Recently, Epley & Gilovich (2002) have posited that the effectiveness of anchoring and adjustment may vary significantly between different decision making situations. For example decision makers may produce their own anchors or the project sponsors or the firm may provide suitable anchors for decision makers in initial project information. In the pharmaceutical industry e.g., a firm may use cost estimation models based on past project costs and drivers to evaluate research and development projects, the use of which may prove more valuable than self-generated anchors.

The application of various heuristics by boundedly rational individuals has been demonstrated in the works of Tversky & Kahneman (1974) and Kahneman et al. (1982). They noted that decision makers have a tendency to sort their knowledge and recall events which represent those of similar type (*representativeness* heuristic). Tversky & Kahneman (1971) recognized that human information processing has a tendency to bypass computations using statistical techniques and use intuition instead. The intuitive response to an initial project opportunity may be fast, almost automatic, using a process of prototype or stereotype recognition. Managers may be prompted by information about a new project or their past experience to make cognitive connections. The intuitive cognitive system can be distinguished from a reflective system of reason whereby there is conscious application of rules in a deductive and controlled way (Kahneman & Frederick, 2002).

Tversky & Kahneman (1974) and Kahneman *et al.* (1982) also demonstrated that boundedly rational individuals employ *availability* heuristic to make judgement, while Tversky (1972) demonstrated how they use simplified strategies e.g. "elimination by aspects" to make decision. Accordingly, availability of experience to use as a reference point might influence decision makers' judgement. Managers with significant past experience of a similar project would be able to recall the project features. *Overconfidence* when assessing new projects might however result from the level of past experience of projects of a certain type or opportunities in a certain industry. It would therefore be important that assumptions are questioned and challenged in a systematic way (Bazerman, 2006) before group-based decisions are reached. Camerer & Lovallo (1999) extended the works of Larwood & Whittaker (1977), Svenson (1981) and Alicke *et al.* (1995), which established that when individuals assess their relative skills they tend to overstate their acumen relative to the average, to economic decision making.

Framing

Framing is another form of cognitive bias which is observed when decision makers react differently to the same basic information presented or framed in a different way (Tversky &

Kahneman, 1986). It is closely related to the concept of heuristics and suggests that decision makers respond in different ways to the same basic information *presented* or *framed* in a different way (*ibid.*). Decision makers react differently because of their personal expectations, preferences and attitudes to risk. For example, as Samuelson & Zeckhauser (1988) noted, personal preference that often conflicts with economic rational analysis is that of preferring the *status quo* compared to significant *change*. *Status quo bias* is the preference of the status quo or *do nothing* option over others during decision analysis. This bias is a response to a proposition based on personal preference.

Accordingly, bias in framing plays a significant role in strategic decision making, and scholars have researched the subject widely. Researchers e.g. Hodgkinson *et al.* (1999) have researched into ways in which this bias could be reduced. Hodgkinson *et al.* (*ibid.*) carried out an empirical research into how causal cognitive maps could be used in strategic decisions to reduce the effect of framing bias. They established that cognitive mapping prior to choice did reduce bias, though the validity of their finding that cognitive mapping would improve the quality of strategic decisions might require more testing. Other researchers detailed the *cognitive strategies* that underlie judgement and decision making, e.g. Slovic (1995) and Payne *et al.* (1993) elaborated models of *constructed preferences*. Montgomery (1983) elaborated *dominance structuring*, and Shafir *et al.* (1993a) elaborated *comparative advantages*. Indeed, Shafir *et al.* (1993b: 34) argued that "decisions … are often reached by focusing on reasons that justify selection of one option over another".

The impact of framing of prospects (definition and description of opportunities) on evaluation phase of a decision and therefore the final choice was examined by Tversky & Kahneman (1986) through a number of studies. They found that decision makers emphasized the initial information about the choice (the concept of *primacy*), or the most recent information (the concept of *recency*), more than a balanced view of all the data. The influence of primacy and recency in the human processing of information made an important contribution. However, the importance attached to the information relating to a decision may be influenced by self interest, thus primacy of information varies between

individuals as well as over time. Individuals also have a tendency to recall examples from the recent past more readily than from the distant past, and to place more importance upon recent or up-to-date information. Decision makers reactions to proposals also draw quite heavily on the emotive or intuitive (right) side of the brain; a process that happens rather subconsciously in even the most ethical and assiduous managers (Holloman, 1992; Claxton, 1998).

Team and Group Processes

The concept of *consensus* deals with team and group processes and the ways in which managers may seek to influence others during decision making. It draws from organisational studies on managerial behaviour and is therefore a combination of psychological, sociological and political perspectives. Narayanan & Fahey (1982) noted that organisational decision outcomes are the end result of *political power* and *coalition.* However, the extent to which political power and coalition are exercised in SID making at the expense of objectivity needs to be explored and this is one aspect of SID making that has been studied in this research study.

Given that SID making takes place within the organisational context, it would be very rare for an individual decision maker to identify, evaluate and decide upon strategic investments in isolation from others. The possible exception is a small business owner who is a sole trader with no other interested parties. Therefore the participation of organisational members and related parties in the making of strategic decisions introduces the issue of *team and group processes* and the view that some degree of *consensus* is necessary to agree SIDs. The effectiveness of group processes has been investigated by researchers from a variety of perspectives. The value of group decision making is recognised by Hall (1971: 51) who observed that: "Group decisions often are frustrating and inadequate. All members want agreement, but they also want to make their own points heard". The net result, however, could be a group decision which outperforms the average of individuals' decisions.

In contrast, Janis (1982) examined the danger of *group think* where familiarity cushions in-group managers from alternative views and paradigms. Hillson & Murray-Webster (2005: 71–75) elaborate more group behaviours: the *Moses factor*, where members of the group adopt the risk preference of an influential and charismatic leader, allowing the leader's views to dominate the discussion and influence the outcome of the SID. They also recognise *cultural conformity*, where organisational culture places undue or hidden influence on the SID, resulting into decisions that fit with the perceived ethos or values of the organisation. After sharing individual views, the group risk attitude can 'shift' to become more (cautious shift) or less (risky shift) risk averse.

Consensus draws attention to group composition and the dynamic interaction, or otherwise, of the group members. The ad hoc ways in which managers seek to influence others (Pettigrew, 1973) and the various means of seeking consensus (Schweiger *et al.*, 1986) are also pertinent to understanding decision making involving multiple managers. There has been useful research from social and political science perspective which highlights the importance of group identity, by observing solidarity and universal promising in dilemma situations (Dawes *et al.*, 1988). This socio-political dimension of decision-making has been observed in field studies on capital budgeting (Bower, 1986; Hickson et al., 1986; Lumijärvi, 1991; and Mintzberg et al., 1976).

1.3.4 Justification of Research Questions

From the above theoretical considerations a number of questions arise as to the nature of managerial involvement in SID making. In relation to SID context and process, the questions that arise are: who gets involved in SID making? How many stages does the SID process go through? Are the stages of the SID process similar across organisations? If not, how do they differ? How do managers get involved in SID making? When do managers get involved in SID making? In relation to the application of concepts of heuristics, framing and consensus: Which activities do managers carry out during SID making? How

do managers behave in SID making? What influences the judgement and nature of involvement of managers in SID making?

This study was designed to address these questions, which do not appear to have been explored earlier in an integrated way. The data obtained in response to these questions was analysed qualitatively and quantitatively, using the methods and framework discussed below.

1.4 Methodology and framework for analysis

This section outlines the research philosophy, research methodology, and the research process adopted for this study. It also summarises the framework that has been used for analysis.

1.4.1 Methodology

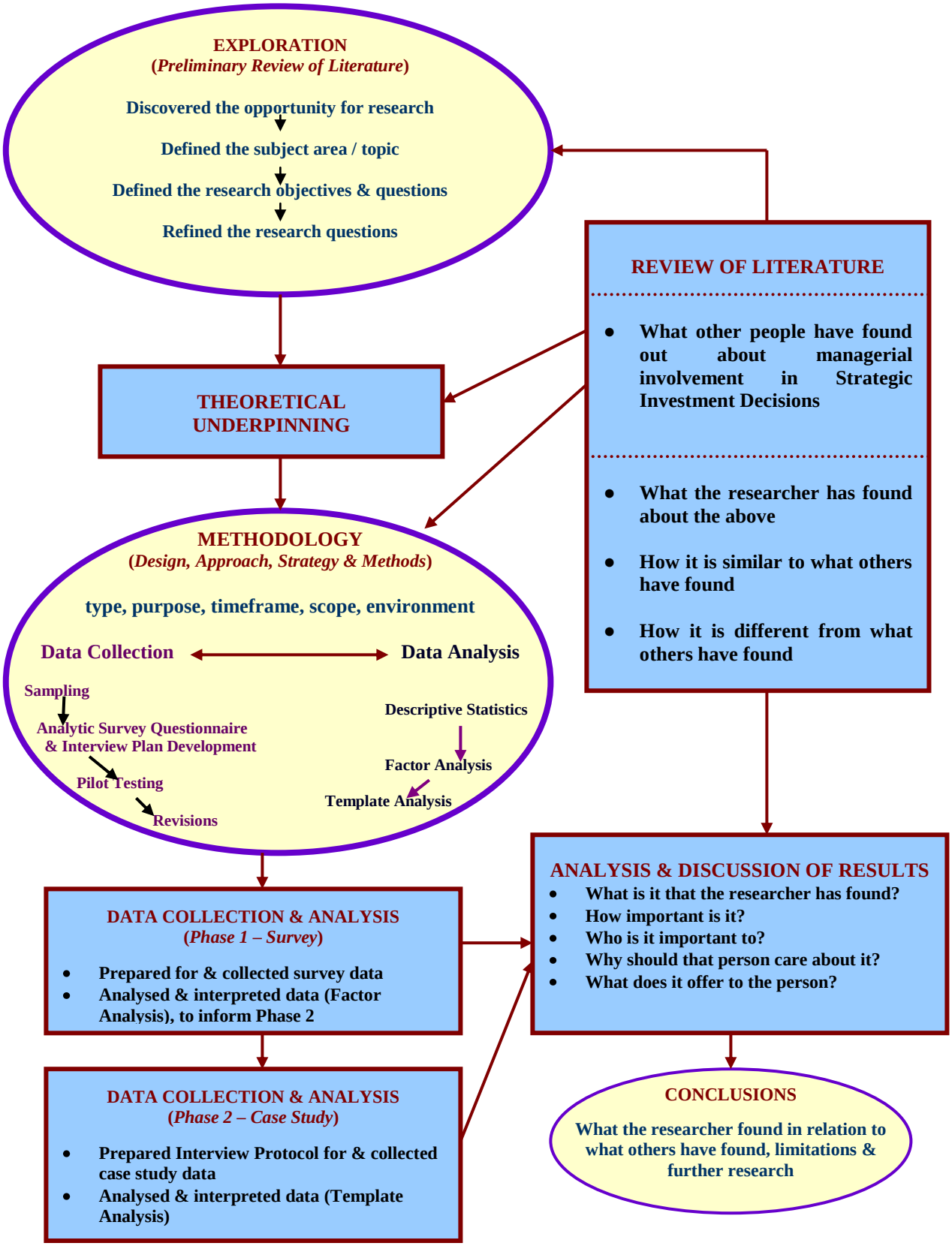
The epistemological basis for the research study is a blend of **positivism** and **interpretivism** i.e. **pragmatism.** This is because by training and experience the researcher always takes the good, useful and applicable aspects of any two conflicting philosophies as long as they can best help answer the research questions and meet a study's objectives. The philosophy adopted is fully discussed further in **Section 3.1** of **Chapter 3**.

Based on the philosophical orientation, the methodology used for the study employed a multi-method approach and triangulation of methods and data; and drew from positivist and phenomenologist research paradigms. It uses a mainly deductive approach with some elements of inductive approach, and employs a combined survey and case study strategy. Associated data collection and analysis techniques are discussed in **Chapter 3**.

1.4.2 The research process

For this study, the researcher followed the process illustrated in **Figure 1.3**. The study went through the following phases:

Figure 1.3 – The Research Process



- the review of relevant literature to:
  - inform the research objectives and questions,
  - provide the theoretical underpinning of the study;
- the research objectives and questions informed the methodology and methods adopted;
- using the methodology adopted relevant methods were used to collect and analyse data:
  - data was collected by means of an analytic survey questionnaire, highly-structured interviews of key managers, and supplementary data from archival sources e.g. internal documents, reports etc.;
  - preliminary findings from the Factor Analysis (analytic survey phase of the study) informed the interview plan, questions and the case studies;
- the findings from the data were discussed and the results linked to the relevant literature;
- the researcher established what the study found that confirms what prior researchers have found and what was new;
- conclusions from the study were drawn and potential benefits from the findings and why they are important was ascertained; and
- finally the researcher reflected on the whole process and suggested areas for future research.

1.4.3 Framework for analysis

Data from the survey phase of the study was coded for analysis, tabulation and calculation of relevant descriptive statistics. Then, Factor (Principal Component) Analysis was conducted to deduce the key factors that emerged from the data. Cross-tabulation within Factor Analysis revealed the correlations between the factors and trends in the data were observed and queried to establish whether any sense could be made out of them. In addition, data from the cases was analysed using an analytic framework comprising organisational context of the case, the SID process and managerial judgement, and a template for analysis (**Appendix 5**). The framework is fully discussed in **Chapter 5** and the case analyses conducted in that chapter followed this analytic framework.

1.5 Significance of the study

The nature of involvement of managers appears to have missed the focus of scholars who have investigated SID making. Multiple managers with various professional backgrounds and functional positions get involved in the SID making. The findings of the study have implications for investigating SID making and for choosing managers to be included in the SID teams. The nature of managerial involvement in this study focuses on the organisational context and psychological factors that may enhance/enable or inhibit managerial judgement and involvement in the SID process. Organisational context identifies the various stages of project selection and managers' participation at these stages. Although other attributes may arguably be influential, the study concentrates on the psychological constructs of *heuristics*, *framing* and *group consensus* that managers may display when involved in strategic investment decision making. The application of heuristics, framing and group consensus, and the enhancers/enablers and inhibitors of managerial judgement and involvement in SID making help us appreciate the importance of the nature of managerial involvement in SID making.

The key findings specifically contribute to five areas, which suggest that elements of organisational context and culture combine with the psychological factors to enhance/enable or inhibit managers' judgement and involvement in SIDs:

i. **SID process:** There is support for a six to 10 stage model of SIDs across the survey and cases. This can provide a structure for new or developing organisations. Implementation and post completion review stages of the SID process are being emphasised, and a new stage, change management, has emerged. SID process in MNCs is complex, comprehensive and well documented, whilst the process in MSEs is informal, ad hoc and not documented.
ii. **Knowledge adjustment:** Managerial knowledge adjustment during the SID process in MNCs and some MSEs is continuous with feedback and feed forward loops. A circular feedback and feed-forward method of knowledge adjustment has emerged.

iii. **Managerial Judgement:** Managers' strategic cognition and application of heuristics are relevant to SID making. Widespread consultation of external parties occurs during the SID process, which impacts on managerial judgement. Intuition guided by prior learning is frequently employed by managers in exercising managerial judgement.

iv. **Socio-political processes of achieving consensus:** Consensus during SID making is achieved in three ways: reaching agreement, constrained agreement and decree. Company philosophy influences achievement of consensus. In addition, managers' attributes of sociality, similar experience, forthright speaking of mind, respect of superiors' views and negotiating skills are important in gaining consensus. Political power and coalition process, in the form of temporary alliances and personal agendas, often occur during SID making and impact on managerial judgement and involvement in SIDs.

v. **Factors that enhance/enable or inhibit managerial judgement and involvement in SIDs:** Managerial judgement and involvement in SIDS is contingent upon corporate context, organisational culture, managerial experience, technical knowledge, management style and discretion of top managers. Prescribed SID process such as in MNCs might inhibit managerial judgement. In contrast, top managers' discretion and heavy involvement in simple and ad hoc SID processes can also inhibit managerial judgement. Procedures that impose prescribed format for SID information and reaching agreement inhibit managerial judgment, whilst those allowing free format for presentation and reaching agreement, drawing on intuition and business knowledge, enhance managerial judgement. Use of brainstorming, comparison with past projects and a range of other reference points enable managerial judgement. Where an SID group adopt a risk preference of an influential and charismatic leader i.e. the 'Moses factor', managerial judgement might be inhibited. Inclusions of managers with different experience, who speak their minds and are trained in negotiating skills in an SID group, can enable managerial judgement. However, inclusions of managers who are socially compatible, with similar experience and who respect superiors in an SID group appear to inhibit managerial judgement.

1.6 Chapter Summary

This chapter introduced the study and the research aim and questions. It discussed the rationale of the research and its scope. It also discussed the theoretical considerations and concepts that underpin the study: the SID context and process, managerial judgement and the justifications for the research questions. The chapter introduced the methodology and the analytic framework used for the study. It finally outlined the significance of the research. The structure of the thesis is outlined below.

1.6.1 Outline of the Remainder of the Thesis

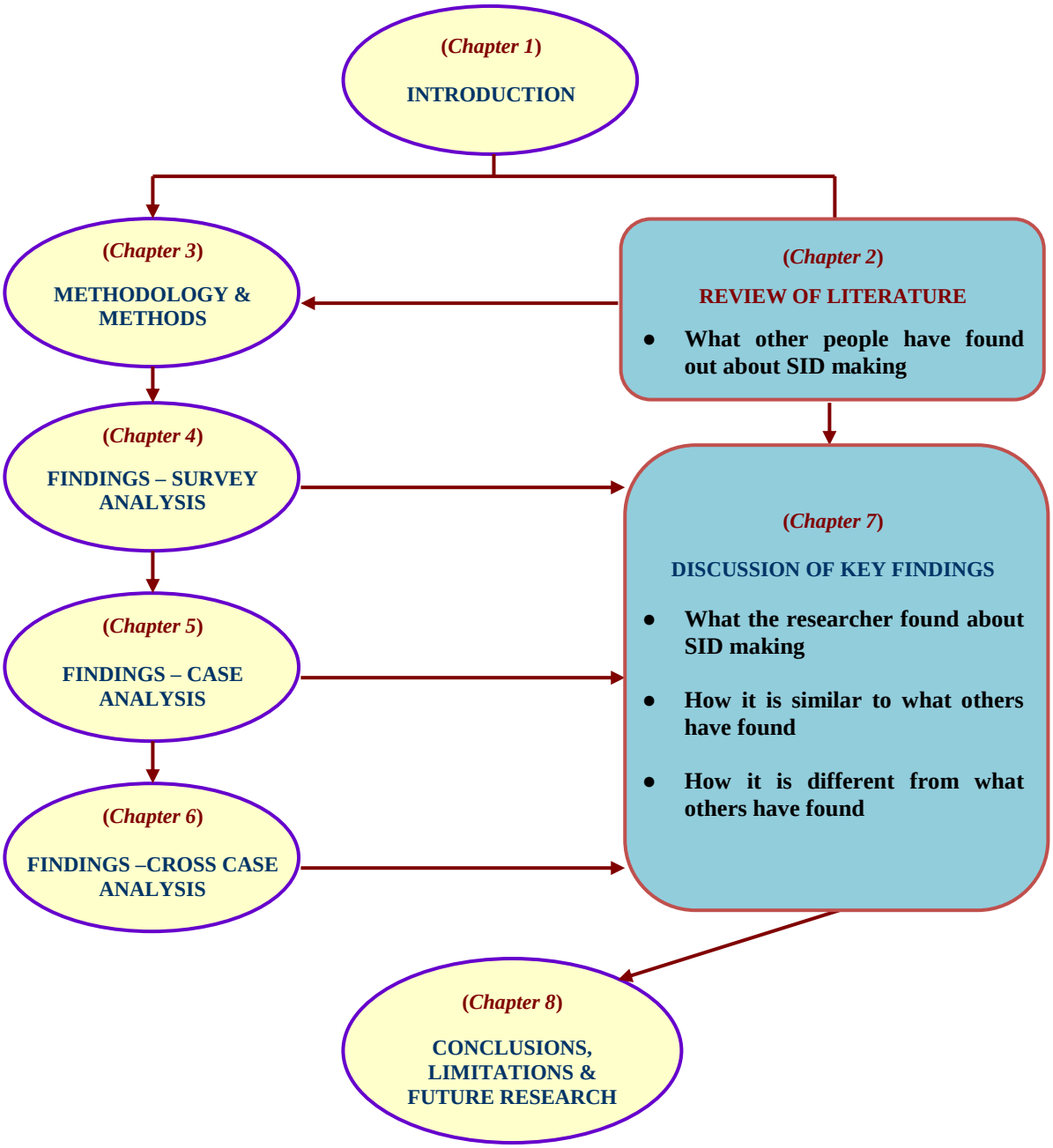
In this section, the reader is taken through the thesis structure. **Figure 1.4** illustrates the thesis plan and links between the chapters. The rest of the thesis is organised as follows:

Chapter 2 presents a synopsis of the literature, which is divided into a discussion of investment appraisal and capital budgeting literature, behavioral aspects of SIDs, and why study the nature of managerial judgement in SIDs.

Then in **Chapter 3** the methodology used to conduct the study has been discussed. The chapter presents the philosophical orientation of the researcher and discusses the choice of methodology and how the methods have been utilized during the study to ensure high quality data and appropriate analysis of the data.

Next **Chapter 4** presents and discusses the survey results. Then in **Chapters 5** & **6** the case study results and cross-case analysis of the data are presented. **Chapter 7** discusses the key findings from the two phases of the study. Finally **Chapter 8** draws conclusions from the findings of the study and discusses impacts of the findings of the research. It also presents the researcher's reflections on the research process, possible limitations of the study and suggestions for future research.

Figure 1.4 –Thesis' plan and the links between Chapters



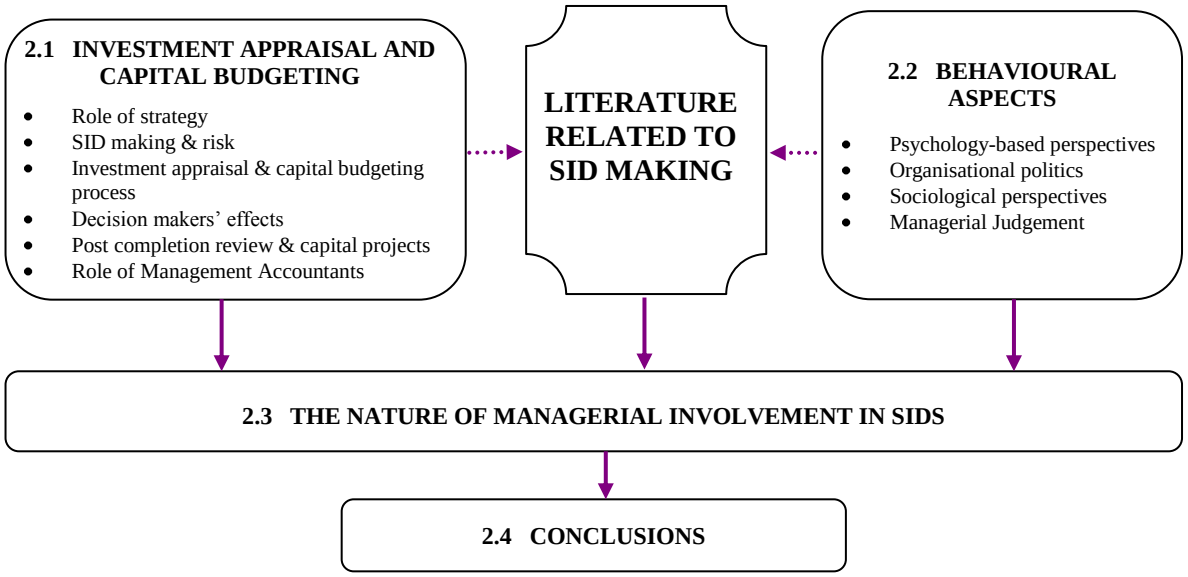
Chapter Two

Review of Relevant Literature

Chapter 2

Review of Literature Related to SID Making

General Overview



SID making is very important to the success and survival of any enterprise, and one might expect every aspect of it to be well covered in business and management literature. However, a review of literature in these disciplines indicates that most prior research concentrates on the different methods of appraising the viability of the investment, and rarely the SID making process and the role that stakeholder groups play in this process. They also give less coverage of human involvement and behavioural aspects SIDs. Indeed as noted by Pike & Neale (2003), the literature on capital budgeting (*investment decisions are often referred to as capital budgeting decisions*) emphasises investment appraisal. The assumption on which such an emphasis is based appears to be that: "the application of theoretically correct methods leads to optimal investment selection and, hence, maximizes shareholder's wealth" (*ibid*: 229). Bierman & Smidt (1988:1) present a very useful summary of what they and other commentators e.g. Bower (1986) argue is a theoretically correct and easily replicated technique of capital budgeting decisions. Their summary of

the technique (which essentially represents the investment appraisal aspect of SID making) is that:

> "Essentially, the procedure consists of a choice of a rate of discount representing the time value of money, and the application of this rate of discount to future cash flows to compute their net present values. The sum of all the present values associated with an investment (including immediate outlays) is the net present value of investment." (Bierman & Smidt, 1988: 1)

When using this method, those investments with the highest net present value should normally be chosen. However, this technique has a number of limitations, e.g. the choice of discount rate is subjective, the net present value relies on the quality of assumptions underlying the cash flow forecast, etc.

However, investment appraisal is but only one aspect of the SID making process. Literature on the human involvement and behavioural aspects of SID making, does not appear to have been adequately covered in any single academic discipline. Relevant literature is found across various disciplines as depicted in **Figure 1.1** and **1.2** in **Chapter 1**. Moreover, investment philosophies of companies making investment decisions differ from company to company depending on the *company policy* and *strategies*, and based on these philosophies, "investment decisions may be tactical or strategic" (*ibid*: 4). While tactical investment involves spending smaller sums of money on a continuation of what the company has been doing before, SID often involves spending larger amounts of funds on a fundamentally different process or line of business from what the company has been doing before.

This study follows three strands:

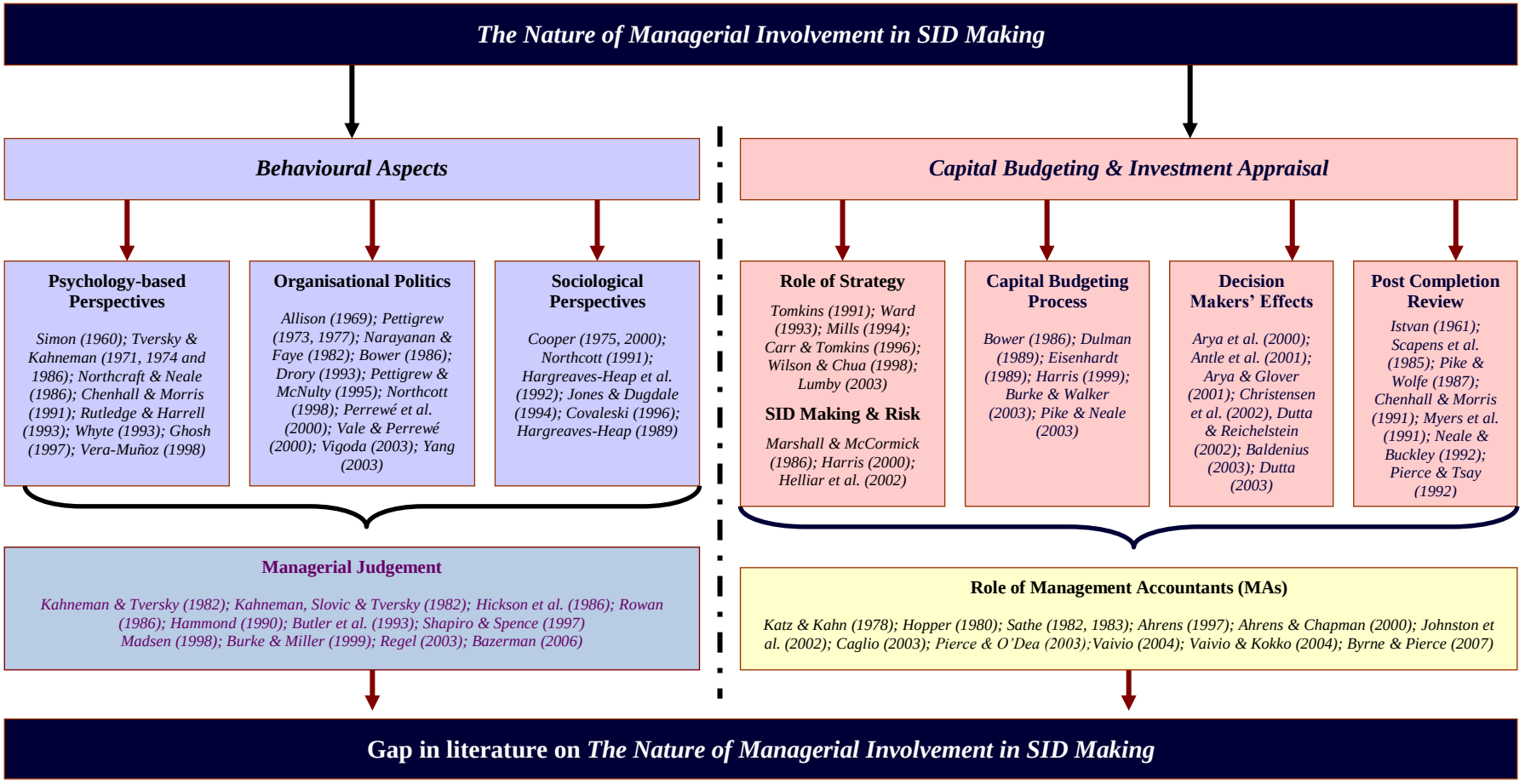
1. It validates and extends Harris' (1999) model of the SID process.
2. It builds on psychology work, i.e. the use of intuition, heuristics, and group decisions. It takes psychology work further to looking at what enhances or inhibits managerial involvement in SIDs.
3. It investigates the nature of involvement of managers, mainly with a management accounting background, in SIDs.

Accordingly, literature related to these strands (capital budgeting and investment appraisal process, and behavioural aspects of SIDs) were reviewed. The reasons for selecting these groups of literature were that: Psychology literature focused on individual decision making and this study looked at individual involvement in group-based decision making in a business organisational context (human involvement and behavioural aspects). SID making takes place in organisations with various settings and it was necessary to review literature on the capital budgeting and investment appraisal processes in organisations. Furthermore, a population of CIMA members in senior and general management roles within their respective organisations was sampled so literature on role of management accountants (MAs) was included in the review as their role became relevant to the study.

MAs have historically contributed immensely to investment appraisal. Although MAs share a taught technical knowledge, the experiential knowledge is usually general and organisationally dependent (Ahrens & Chapman, 2000). How the MA frames their decisions often depends on how they understand the organisation within which they work (Boland, 1993). Ahrens & Chapman (2000: 478) note that MAs "develop more specific interpretations of technical accounting knowledge in light of their personal experience" over the course of their career as a result of continuous use of technical knowledge. MAs engage in diverse activities (including general and senior management) and are expected to engage in SIDs within various organisational settings. The settings are more diverse due to the rapidly changing and highly competitive environments, structural changes and innovations, and sophisticated information system development (Ezzamel *et al*., 1997; Burns *et al*., 1999; Granlund & Malmi, 2002; Scapens *et al*., 2003) that companies face.

Although, academics have devoted a lot of attention on *tools* and *techniques* that are used during SIDs and MAs *as providers of information*, these two areas of literature are not central to the focus of this study. The primary focus of this study is on involvement of managers (albeit with a management accounting training) in the whole SID making process.

Figure 2.1 The Literature Map



The synopsis of SID literature in this chapter is grouped under two main rubrics *viz.*: investment appraisal and capital budgeting, and behavioural aspects of investment decisions. A map of the relevant literature is shown in **Figure 2.1**.

2.1 Investment Appraisal & Capital Budgeting Process

Literature on investment appraisal and capital budgeting is mainly found in the Management Accounting, Financial Management, Corporate Finance and Economics disciplines. The literature has mainly focused on the evaluation of new investments, which is considered the path which organisations take to create value for their owners. Current investment decision making practices, in contrast to early practices (which relied on the owners' business knowledge and intuition), focus on capital employed and use various financial tools. However, business experience and intuitive judgement are still important. Today, investment decisions are normally made by managers rather than owners, and the community is much more interested in investment decisions. Corporate finance literature has evidence that corporate investment and financing decisions are endogenous, and firms tend to self-select into preferred investments.

There may be several projects to select from and most past studies on such projects have tended to focus on the techniques that managers use to select from the alternatives as opposed to the actual process the SID goes through. However, capital budgeting research has investigated the development of capital budgeting processes, investment appraisal techniques, decision makers' impact on the investment appraisal process, the impact of organisational structure and processes, institutional issues, environmental issues, and post investment review. Literature on capital budgeting has focused on how decision makers assess the return on the investment; agency issues (how top managers seek investment opportunities and how they design investment appraisal processes); and identification, capture and evaluation of uncertainties regarding long-term investments. The synopsis of investment appraisal and capital budgeting literature is discussed under: *the role of strategy, SIDs and risk, capital budgeting process, effect of decision makers, post-completion review of capital projects* and *the role of management accountants*.

2.1.1 The Role of Strategy

Strategy plays a significant role in investment decision making. Theoretically, most investments follow from the organisation's strategies; for example a company's strategy may be to achieve high growth within its industry. The organisation's strategies reflect "both the special skill[s] and abilities" (Bierman & Smidt, 1988: 5) that the company possesses i.e. its comparative advantage over others.

Strategy may be looked at as a "logical response to environmental change" (Johnson, 1988: 79) or as "the basic characteristic of the match an organisation achieves with its environment" (Hofer & Schendel, 1978: 4). The pattern in a series of decisions made by an organisation discloses the stance of that organisation concerning its environment (Mintzberg, 1977). This indicates that there is a close relationship between strategy and decision making. Strategic aspects of decision making refers to what has "not been encountered before in quite the same form" (Narayanan & Fahey, 1982: 25), and is vital in terms of resource obligation or patterns laid down (Mintzberg *et al.*, 1976; Mitroff & Emshoff, 1979). As noted by these authors, no programmed or clear set of ordered responses exists for this aspect of decision making.

Strategy molds investment decisions in that the attractiveness of the investment proposal depends equally on its strategic importance as on the rate of return it offers (Pike & Neale, 2003). Bower (1986) had recognized as early as 1970 the strong link between **capital investment** and **strategic planning and decision making**. Likewise, other authors (e.g. Tomkins, 1991; Ward, 1993; Mills, 1994; and Lumby & Jones, 2003), have highlighted the linkage between financial and strategic analysis. Consequently authors (e.g. Marsh *et al.*, 1988; Butler *et al.*, 1991; Carr & Tomkins, 1996; and Harris, 1999) have increasingly referred to SID making, or strategic investment appraisal, when discussing capital investment activities.

These studies on strategy have looked at the normative theory of strategy and only highlight the role of strategy in investment decisions. They have not focused on how a manager's knowledge of strategy formulation impacts on their judgement and involvement in SIDs. This study looks at managers' involvement in SIDs and the stages of the SID process in various organisations, which stage(s) formulation of strategy features in, and its impact(s) on managerial judgement and involvement in SIDs.

About 20% of the U.K. companies studied used formal strategic analysis techniques during investment decisions (Carr & Tomkins, 1996). Strategic analysis techniques include: strengths, weaknesses, opportunities and threats (SWOT) analysis; strategic portfolio techniques (for example the Boston Consulting Group (BCG)); Porters' five forces analysis; generic strategies; value chain analysis; market analysis; and core competence concepts. Some managers consider strategy a style of thinking or a thinking pattern (*ibid.*). To these managers, strategic planning of investment decisions, involves more than financial considerations, since financial considerations are not the same for every investment: they consider strategic options as well. Indeed, where the investment is considered strategically very important it would justify over-riding financial evaluations completely. These managers advocate having strategic planning and finance departments together, which indicates that those involved in the finance function are expected to have knowledge of strategic planning as well. SID making is part of strategic decision making function of an organisation, as it is explicitly linked to the long-term strategic direction of an organisation. One of the considerations at the preliminary screening of capital investment proposals is whether it is in line with the organisation's overall strategy (Northcott, 1998).

The study by Carr & Tomkins (1996) looked at managers' use of strategic analysis techniques when planning investment decisions; while Northcott (1998) noted that preliminary screening of projects involves screening for strategic fit. However, they did not focus on how managers involved in SIDs participate in strategy formulation and how knowledge of strategy formulation impact on their judgement and involvement in SIDs. '**Strategy**' is different from '**planning**' and the difference is particularly marked in the

complex, unique and rapidly changing environment that business organisations operate in. Although **strategic management** involves decision making, it is not simply about decision making. Enterprises usually construct projects or investments into strategies and use evaluation of the projects as a starting point for monitoring the implementation progress. To assist strategic monitoring, quantitative skills such as those possessed by the management accountant are very important, and this study focuses on involvement of senior and general managers with management accounting training in SIDs.

Strategic planning and investment decisions are linked and the features of **strategic decisions**, identified by Wilson & Chua (1988:161), are still relevant today. Strategic decisions:

- deal with the scope of an organisation's activities, i.e. the definition of the organisation's frontiers;
- agree the organisation's activities with its environmental opportunities;
- match an organisation's activities with its resources;
- involve tremendous long-term resource implications;
- are affected by the principles and expectations of those who decide the organisation's strategy;
- have an effect on the organisation's long-term direction; and
- are Byzantine in character.

Normally a business will start by formulating a strategic plan: the strategic plan then guides its search for projects to invest in. Accordingly strategic planning and project analysis complement and reinforce each other: strategic planning deals with the big picture, while project analysis looks at the individual elements within the big picture. Project analysis can be used to verify whether or not the strategic plan is correct. It might provide useful feedback that can be used to verify the accuracy of the plan. If attractive projects are not found within the plan, there is need to revise both the strategic plan and the project analysis. The organisation can therefore prepare an investment strategy (statement of formal criteria), which it utilizes in looking for and assessing investment opportunities. This strategy will lead to a strategic plan that the company uses in searching for projects, usually by recognising product lines and geographical areas in which to look for promising investment

projects. This study recognises the interaction between the strategic plan and investment decisions, and sets out to find the importance of strategy formulation during the SID process, and in particular the investment strategies of the six case companies.

2.1.2 SID Making and Risk

Risk is used to aid decision making and accounting and finance literature has mostly dealt with risk on the basis of the scientific (rational, synoptic or comprehensive) paradigm. Finance theory assumes that managers rationally consider all possible outcomes and their likelihood of occurrence. Thus techniques, e.g. probability, standard deviation, decision trees, expected value tables, discounted cash flows and sensitivity analysis, have been used to incorporate risk in decision making. This theoretical approach to risk assessment during decision making, however, appears to ignore the social construction and psychological paradigms, which include the sensitivity of what managers do in practice while assessing risk. Recently, Collier *et al.* (2007: xix) observed that there were four domains of risk: financial, operational, political and personal, which reflect the different social constructions of participants. Collier *et al*. did not however look at how intuition is employed by managers to assess the risk associated with the SID. The current study looks at how managers assess the risks associated with SIDs.

In their recent study Helliar *et al*. (2002) examined the managerial attitude to risk in the UK with the aim of discovering whether or not managers are irrational, concentrating on simple heuristics, instead of focusing on statistical outcomes during the decision making process. They found that there is irrationality in some managerial decisions, which can be explained by the psychological approach to risk analysis. The managers do not appear to use the rational approach found in various finance text books. The current study on the involvement of managers in SID, among other things examines the role of intuition and heuristics in the stages of the SID making process. Furthermore, uncertainty of outcomes may lead to flexibility (Marshall & McCormick, 1986); since where demand is expected to fluctuate, management would attempt to introduce flexibility by having a reserved capacity.

A question of interest here is: What are the activities of managers in assessing the risk associated with the SID?

2.1.3 Capital Budgeting Process

Most prior researchers and authors have presented decision making as a '**process**' connoting that it comprises a series of actions and events, and that it is a progression. SID making process is a business and management process that is a function of a set of conditions and individuals, and takes place within an organisation. In fact Pike & Neale (2003: 230) describe decision making as "an incremental activity, involving many people throughout the organisational hierarchy, over an extended period of time". Capital budgeting management processes have been implemented in firms to match decentralized structure of business organisations. Managers and mid level employees in divisionalised firms possess information required to initiate capital investment proposals (Dulman, 1989; Chandler, 1977); and as King (1975) points out, before projects can be evaluated, they need to be created and defined.

Various researchers have recognized that the capital budgeting processes in firms go through identifiable phases. Norton (1955) identified only three phases of the capital budgeting process: initiation, screening and approval; whilst Bower (1986, first published in 1970) identified project initiation process, approval process, and upper level screening process. King (1975) identified six stages: triggering or recognition of investment opportunity, screening, definition, evaluation, transmission, and decision. Harris (1999) identifies seven phases for a decentralized firm: project generation, preliminary assumptions, divisional executive team views, detailed assumptions, divisional executive team judgement, group board criteria, and measured outcome. Burke & Walker (2003) introduce strategy to the process and identify six phases: determination of strategic issues, identification of alternative courses of action, collection of relevant data, prediction of relevant costs and revenues, preparation of a decision model, and selection of the best

alternative. Over time capital budgeting research has recognised more stages as businesses become more complex and the environment in which they operate more uncertain.

Table 2.1 Stages of Capital budgeting or Investment Appraisal Process

<table>
<tr><th>King (1975:72)
Six Stages</th><th>Northcott (1998:10)
Five Stages</th><th>Harris (1999:352)
Seven Stages</th><th>Burke & Walker (2003:1)
Six Stages</th><th>Pike & Neal (2003:230-231)
Four Stages</th></tr>
<tr><td>Potential Investment Opportunities</td><td>Identification of Potential Investments</td><td>Ideas & Opportunities
project generation</td><td>Determine the Strategic Issues
(MDec process)</td><td>Determinants of the Budget
how much available to spend</td></tr>
<tr><td>Triggering
recognition of opportunity</td><td></td><td>Preliminary Assumptions
project outline (business case)</td><td>Identify alternative Courses of Action
Select decision criteria
(MDec process)</td><td rowspan="3">Search for & Development of Projects
search for projects, preliminary screening, and definition of project</td></tr>
<tr><td>Screening
Is it worth investigating</td><td rowspan="2">Project Definition and Screening</td><td>Divisional Executive Team Views
decision to proceed or not (early screening)</td><td>Collect Relevant Data</td></tr>
<tr><td>Definition
analysis generation of feasible alternatives</td><td>Detailed Assumptions
DCF analysis & evaluation</td><td>Predict Relevant Cost & Revenues</td></tr>
<tr><td>Evaluation
of alternatives</td><td>Analysis and Acceptance</td><td>Divisional Executive Team Judgement
project appraisal paper presented to board members</td><td>Prepare a Decision Model</td><td rowspan="2">Evaluation & Authorisation
value of projected costs & benefits, target rate of return, does it meet company's evaluation criteria, incorporating risk, authorisation</td></tr>
<tr><td>Transmission
through the organisation</td><td>Implementation</td><td>Group Board Criteria
Group Board decision (fund or not)</td><td rowspan="2">Select the Best Alternative
Implement Decision
(MDec process)</td></tr>
<tr><td>Decision</td><td rowspan="2">Monitoring & Post Audit Review
Feedback (between the stages)</td><td>Measured Outcome
Post Audit Review</td><td rowspan="2">Monitoring & Control
during implementation, whether on schedule, post audit evaluation, lessons learnt drawn to assist future evaluation</td></tr>
<tr><td>Execution</td><td></td><td></td></tr>
</table>

MDec = managerial decision process.

A selection of phases of the capital budgeting and investment appraisal process that researchers have identified is shown in **Table 2.1**. As can be seen from the table, the phases tend to relate to the aspects of SID studied. For example, Pike & Neale (2003) depict a simple capital budgeting system as a four stage process, from determinants of the

budget, through search and development to evaluation, authorisation, and monitoring and control; a model that has possible feedback loops. It allows a return from the evaluation stage to the search and development stage as one of four feedback loops, and allows for the possibility of an idea being generated out of the normal sequence, at stage two, which causes management to consider an increase in the budget by looping back to stage one. The model does not stop at the decision point, but adds a monitoring and control stage (post completion audit), which loops back to the evaluation stage. Harris' (1999) investment appraisal model and Pike & Neale's (2003) capital budgeting system are an improvement on earlier presentations of the process.

King (1975), Northcott (1998) and Harris (1999) have identified stages of capital investment process in single organisations; while Pike & Neal's (2003) depiction of the stages is based on normative theory of the traditional management accounting budgeting process. Burke & Walker (2003) recognise business complexity and the uncertain environment in which businesses operate and introduce a more strategic aspect. These depictions of the capital investment process were based mainly on limited case evidence so we do not know how applicable they are across organisations. This study investigates whether the stages of the SID process are similar across organisations.

2.1.4 Effect of Decision Makers

In today's business environment, with the high level of capital needed to invest in advanced manufacturing technology (Eisenhardt, 1989a), the concept of setting and adhering to an annual capital budget is perhaps outmoded, or at least restricted to projects which would not fit the definition of an SID. Bower (1986) shows that organisational design and human factors influence capital project advancement. This is similar to King's (*op cit.*) conclusions that organisational, environmental, and human factors are important in capital budgeting, and a number of researchers have investigated these further. However, what influences the nature of involvement of managers in SID making appear not to have been explored. Most scholars researching the capital budgeting process have devoted efforts to exploring and refining the theory and the mathematics of investment appraisal, with very

few recognising that policies and process of investment appraisal arise from human factors and attributes. Research on the decision makers' effect has either been modeling-based or psychology-based, and the latter being discussed later.

Modeling-based capital budgeting and investment appraisal started when Harris *et al.* (1982) developed a model which showed that company results are driven by managers' concern about their emoluments and efforts. They found that when managers held private productivity information but were unenthusiastic to put effort, optimal results would only be attained by allowing them to select investments. Various researchers applied and extended this model: to show that managers' attitude to risk affects the use of capital rationing (Arya *et al.*, 1993); to show that long term contracts can mitigate the problems of information asymmetry (Antle & Fellingham, 1990); and to explain why budget slack is created by managers (Antle & Eppen, 1985).

Models have also been developed to explain observed capital budgeting practices, e.g. Arya *et al.* (1993) and Baiman & Rajan (1995) developed models to explain capital rationing by decision makers in decentralized firms. Arya *et al.* (2000) developed a model to explain managers' project search, whilst Arya & Glover (2001) and Antle *et al.* (2001) formulated a model to explain the consideration of options in project evaluation. Furthermore, Christensen *et al.* (2002) and Dutta & Reichelstein (2002) built models to explain the use of residual income to remunerate managers; while Dutta (2003) derived a model to explain the link between characteristics of remunerations and retention of managers; and Baldenius (2003) developed a model to show the impacts of empire building on hurdle rates and remunerations.

All these models are agency theory based and rely on investment decision makers' attributes such as: knowledge, risk profile, ability, effort aversion, remunerations, desire for empire building, and reputation. The researchers have used these characteristics to model the response of owners in terms of the form of remuneration and features of information systems. However the impact of these characteristics on the nature of managerial involvement in SIDs has not been explicitly investigated.

2.1.5 Post Completion Review of Capital Projects

Post completion review of capital projects is the least researched area of capital budgeting. As early as the 1960s Istvan (1961) found that few firms performed post completion audits, and even fewer firms include it as a phase of the capital expenditure decision making process for all major projects. He also found that it is normally the project originator who conducts such audits, with the data provided being used to educate proposal originators as well as evaluate their capital budgeting capabilities.

Myers *et al.* (1991) and Pierce & Tsay (1992) also found that few firms conducted post completion reviews, and managers were reluctant to employ post completion audits or to use the post completion audit data. Furthermore, Rockley (1973), Scapens & Sale (1981), and Scapens & Sale (1985) found that post completion audit reports were neither used to evaluate the project sponsors nor to abandon unprofitable projects. On the contrary, Chenhall & Morris (1991) who studied the impact of environmental factors on post completion audit information found that environmental uncertainty might moderate learning, and learning affects future performance.

However, Pike (1982, 1984, 1986) and Pike & Wolfe (1987) have identified that, over time, the use of post completion audit for investments by firms increases. In contrast, Pierce & Tsay (1992) found that post completion audit practices for two Fortune 500 firms remained more or less the same over a ten year period (1978 to 1988). Further, Neale & Buckley (1992) found that post completion audit activities of firms in the UK are a direct result of ownership, while those of firms in the US are a result of environmental factors. These studies on post completion audit have not looked at how knowledge adjustment is effected during SID making, an issue which is investigated in this study.

2.1.6 Role of Management Accountants (MAs)

Management accounting is closely linked to management control. Otley (1994) and Scapens *et al.* (2003) have identified the need for MAs to work in cross-functional teams

and business processes. MAs need to become actively involved in decision making and to integrate financial and non-financial information required at operational and strategic levels of the organisation. Role theory (Kahn *et al.*, 1964; Katz & Kahn, 1978) proposes that organisational roles are determined by expectations of other members of the organisation. Organisational roles are influenced by a number of factors such as: organisational size and structure, attributes of role occupants, and nature of the relationship between the role occupant and the role determinants.

As documented by Ahrens & Chapman (2000: 477), the occupational identity of MAs in Britain is changing, being replaced by new labels, for example 'global expense manager'. There are also changes at institutional level, with labels of management accounting journals changing; e.g. CIMA renamed its journal to *Financial Management* and American Institute of Management Accountants renamed its journal to *Strategic Finance*. These changes in labels reflect changes that have occurred in the role of MAs. Accountants with "management-oriented broad mind" (Vaivio & Kokko, 2006: 70) are concerned with "the bigger financial picture". Accountants are also known to be "pragmatic" and aware of business priorities and market trends (*ibid.*). Further, they are "socially active, articulate and engaged agent[s] who … [rely] on multiple informal networks" (*ibid.*). Accounting practices are standardized, which promotes greater cross-functional interaction of the accountants (Caglio, 2003). Accountants' profiles are therefore elevated; however sometimes they find that their prominent organisational roles are temporary (Granlund & Taipaleenmäki, 2005).

The roles of MAs have enlarged, with greater involvement in business processes (Caglio, 2003; Burns & Baldvinsdottir, 2005). However, there are role ambiguities, contingencies and conflicts regarding MAs' roles (Byrne & Pierce, 2007). MAs perform various roles and the control and technical aspects of such roles are important. Controllers are often considered to be involved in two key areas of responsibility. Firstly they assist the management team in business decision making ("management-service responsibility" (Sathe, 1983: 31)). Secondly, they ensure that "reported financial information pertaining to

the relevant organisational unit is accurate and that internal control practices conform to corporate policy and procedures" (*ibid.*). It is the first role that is the focus of this study. We would expect MAs to be involved, among others, in decision making. However, their involvement as decision makers (business partners) on management teams (Siegel, 2003) is not clear (Byrne & Pierce, 2007). In this study the nature of managerial involvement in SIDs is investigated using a sample of managers with management accounting training.

The MAs' role needs to change due to changing technology and business process. They need to become interpreters, not just of numbers but of what to do with the numbers (Siegel, 2003). The emphasis of management accounting is therefore shifting to its relevance to management decision making. Increasing organisation size and business complexity imply that MAs should contribute to the decision making process. MAs involved in business decisions access sensitive information and take part in deliberations during the decision making process (Sathe, 1983). This responsibility can only be performed well when the MA is actively involved; and MAs' expertise and judgement would be better considered during decision making if they are actively involved.

Studies on the role of MAs in organisational decision making processes have mixed findings. Some studies, e.g. Ahrens (1997), Caglio (2003) and Vaivio (2004) found that MAs' roles are significant; however, Chenhall & Langfield-Smith (1998), Johnston *et al.* (2002) and Pierce & O'Dea (2003) found their roles lacking with regard to information support and extent of involvement in organisational processes. A number of factors have been identified in the literature as impacting on the roles of MAs including: technological developments (Ezzamel *et al.*, 1997; Burns & Yazdiffar, 2001; Granlund & Malmi, 2002; Hunton, 2002; Scapens & Jazayeri, 2003); introduction of accounting innovations (Freidman & Lyne, 1997); management expectations (Hopper, 1980; Sathe, 1982); structural arrangements and physical location (Granlund & Lukka, 1998; Siegel & Sorersen, 1999); competitive environments (Burns *et al.*, 1999); individual qualities (Siegel, 1996; Siegel & Sorersen, 1999; Burns & Yazdiffar, 2001); cross-functional interaction (Nulty, 1992; Mouritsen, 1996; Johnston *et al.*, 2002); and culture (Granlund &

Lukka, 1998). However, these studies have not focused on how the changing role of MAs impact on the nature of their involvement in SIDs.

Most MAs have dual or multiple qualifications. They may have studied for "non-relevant" degrees (Ahrens & Chapman, 2000: 481) before completing the management accounting training. Members of CIMA would have passed their professional examinations and completed a maximum of three years of relevant experience. However, while studying the member would have spent time working under the guidance of a commercial employer with its own structures of evaluation and training. Therefore, with regards to overall knowledge, CIMA members are from various backgrounds. To meet its objectives, this study's sample comprised mostly CIMA members in senior and general management; and the probable variation in formal knowledge of participants would introduce variation in their perspectives.

2.2 Behavioural Aspects of SID making

Organisational behaviour theories are frequently used by scholars to inform research in decision making. Organisational and sociological theories often contribute to managerial accounting research (Covaleski *et al.*, 1996). Organisational behaviour is guided by routines arising from experience (Nelson & Winter, 1982) and performance feedback (Greve, 1998). "Greater experience with a specific routine provides opportunities to refine the routine and increases the probability of the routine being used" Haleblian *et al.* 2006: 357). However, the adjustment of the knowledge gained by an organisation during SID seems not to be documented.

Organisations are a function of co-operative coordination of human actions (Alexis & Wilson, 1967; and Welsch & Cyert, 1970): they are "social arrangement[s] for achieving controlled performance in pursuit of collective goals" (Huczynski & Buchanan, 2001: 874). Often, organisations are explained in terms of their functions in respect to the environment, while its members are described in terms of the tasks they are expected to perform (Eden,

1992). They are viewed in terms of how decisions should develop, with people within the organisation being expected to make decisions in a delicately negotiated order. Accordingly, for any decision made within an organisation to be successful, it ought to account for the need of all the participants. It should accommodate the reality projected by the analysis that informed the decisions, which include the anticipated social consequences. An organisation is a social phenomenon i.e. an artefact of human intervention (Jeffcutt, 1983). How SID decision makers achieve individual and group decisions within the negotiated order and artefact of human intervention is sought in this study.

The sociological functionalist perspectives of organisations have been applied by researchers in managerial accounting to research issues such as the design of information and control systems, budgeting and strategic planning (Covaleski *et al.*, 1996). The application of the perspectives to research SID has not however been explicitly discussed in the literature on investment appraisal and capital budgeting. It is to be found in the literature on organisations and organisational behaviour; and the relevant literature is discussed below.

2.2.1 Psychology-based Perspectives

Most SIDs are non-programmed (Simon, 1960): an SID may be novel, unstructured and far-reaching. Conventionally, non-programmed decisions involve the exercise of judgement by the decision maker concerned; however, judgement depends on experience, insight and intuition, and in case of complex decisions such as SIDs, creativity (*ibid.*). Non-programmed decisions involve the use of complex psychological processes hence the theories of non-programmed decisions borrow a leaf from Psychology. Economics and Psychology have continued to grow closer in interest, as they both strive to understand the behaviour of individuals in an uncertain environment (Bass & Ryterband, 1979). Individuals are influenced in their decision making by their personal motivations and their past, and therefore have quantifiable preference among various courses of action available in risk conditions (*ibid.*). Indeed, as observed by William James as early as 1890:

> "Man is born with a tendency to do more things than he has ready-made arrangements for in his nerve centres. Most of the performances of other animals are automatic. But in him the number of them is so enormous, that most of them must be the fruit of painful study. If practice did not make perfect, nor habit economise the expense of nervous and muscular energy, he would therefore be in a sorry plight." (James, 1890: 113)

Many researchers have also investigated consideration of opportunity costs during SID making. Decision makers tend to ignore opportunity costs (Becker *et al.*, 1974). When opportunity costs are explicitly provided, decision makers consider them (Neumann & Freidman, 1978) but when opportunity costs are implicit, they are ignored (Freidman & Neumann, 1980). Northcraft & Neale (1986) applied information processing by decision makers based on how investment information is framed to explain why decision makers ignore opportunity costs. They found that when opportunity costs are made explicit in investment information, framing of the information is altered, and as a result, better decisions are made. Chenhall & Morris (1991) looked at consideration of opportunity costs from the angle of information processing style of the decision maker. They considered two styles, 'intuitive' and 'sensing' information processing, and found that whilst decision makers with intuitive cognitive styles tend to consider opportunity costs, those with sensing cognitive styles tend to ignore opportunity costs. Further, Vera-Muñoz (1998) looked at how decision makers' knowledge structures, which have been developed through education and experience, steer their information processing. She found that although high accounting knowledge of the decision makers interfered with their use of opportunity costs, it did not interfere with the resource allocation process. However, literature on application of psychology concepts of intuition, heuristics, framing and group decisions (**Section 1.3**) to SID seems to be lacking. This study builds on psychology work, exploring the use of these concepts during SID making and investigated what enhances or inhibits managerial judgement and involvement in SID.

Psychology studies have also identified escalating commitment to failing projects. Staw (1976) demonstrates that managers who initiated failing projects are more likely to invest

additional resources into those projects, but those who inherited failing projects are less likely to invest additional resources. A question that arises here is: Given this evidence on escalating commitment to failing projects, how important is it for firms to have an individual manager to champion and be responsible for a project? This question has not been answered by capital budgeting literature. Harrell & Harrison (1994) applied agency theory to investigate escalation and show that managers escalate because of information asymmetry and incentives to evade decisions. Ghosh (1997) found that precise feedback and information about future benefits of the project reduce escalation. He shows that progress reports on the project moderates commitment of additional resources to the project. However, how knowledge adjustment is achieved by firms during the SID process is lacking in the literature, and is one of the issues investigated in this study.

Rutledge & Karim (1999) investigated the moral and ethical side of escalating commitment and found that when decision makers have low level of ethical reasoning, adverse selection conditions had the greatest escalation impact. In addition, Ho & Vera-Muñoz (2001) found that managers tend to make goal incongruent investment choices when divisional performance was low. Cheng *et al.* (2003) looked at how escalation can be reduced and found that hurdle rates can be used to reduce escalation of commitment since self-set rates can reduce cognitive discord. The impact of national cultures on escalation was studied by Chow *et al.* (1997) and Harrison *et al.* (1999). Whilst Chow *et al.* (*op cit.*) show that Chinese tend to escalate highly; Harrison *et al.* (*op cit.*) found that Chinese show a lower tendency to escalate. Similar conflicting results were found by Whyte (1993) and Rutledge & Harrell (1993) who studied the impacts of groups on escalation. Whilst Whyte (*op cit.*) found that group processes strengthen escalation, Rutledge & Harrell (*op cit.*) found that framing (positive & negative) moderated the group effect on escalation. All these studies show that investigation of cognitive processes that motivate managers' decisions can augment capital budgeting research. Attributions, framing, and ethical reasoning (cognitive explanations) can explain capital budgeting procedures and processes

Psychology-based research into capital budgeting and investment appraisal is based on the assumption that decision-makers have a systematic cognitive representativeness and bias,

which affect their decision. It has focused on providing psychology-based explanations for attaching less weight to opportunity costs and escalation of commitment to failing projects. Normally the decision maker is expected to identify and consider opportunity costs while making investment decisions. Lacking in the literature is: managerial use of the systematic cognitive representativeness and bias during the SID process; the impacts of group processes (consensus and socio-political) on SID making; how consensus is achieved during SID making; and how managers' attributes impact on the achievement of consensus during SIDs. This study extends these psychology concepts and investigates managerial use of intuition, heuristics, framing, and group processes during SID making.

2.2.2 Organisational Politics

There is no common definition of organisational politics. The key differences in the definitions are ingrained in the distinction of *political* from *non-political* actions; treatment of *self-interest* as a feature of organisational politics; and the *damaging nature* of politics. Accordingly, organisational politics has various definitions from researching scholars. For this study the definition that is adopted is the more objective one by Valle & Perrewé (2000: 361). Based on review of relevant literature they defined individual political behaviour as:

> "… the exercise of tactical influence by individuals which is strategically goal directed, rational, conscious and intended to promote self-interest, either at the expense of or in support of others' interest".

Organisational politics is often not seen in good light, e.g. Chanlat (1997) describes it as a *social disease*, whilst Egan (1994) describes it as the *shadow side* of management, Keen (1981) observes that politic is *evil, corruption* and *blasphemy*. Indeed Ferris & King (1991) observes that politicized decision making is *a walk on the dark side*, whilst Calhoon (1969) describes political tactics as *unsavory*. However, political tactics are both beneficial and dysfunctional (Drory, 1993; Ferris & Kacmar, 1992; and Gandz & Murray, 1980). SID making occurs within an organisation, thus it is an organisational decision making process.

As seen earlier, organisations are a function of individual actions and consist of several interests that compete for resources and attention. They have their own peculiar contexts, pressures and procedures (Allison, 1969). Organisational decision making, therefore, involves a number of *political* activities such as: *coalitions of interest*, *temporary alliances*, *bargaining*, guile, and *bias*. It is influenced by organisational contexts, pressures and procedures; and decisions may be a result of bargaining games that are influenced by perceptions, inspirations, positions, authority and manoeuvres of the political rivals involved (*ibid.*).

Various authors e.g. Pettigrew (1973), Hickson *et al.* (1986), Mukherjee & Henderson (1987), Butler *et al.* (1991), Cyert & March (1992), Butler *et al.* (1993), Northcott (1998), and Bazerman (2006), have observed that politics play a big role in organisational decision making and SID making. There is evidence from field based studies (Bower, 1986) that organisational life is shrouded with politics, where individuals often pursue their own interests. Often capital investment proposals, which are not politically acceptable, are likely to go no further than the preliminary screening stage (Northcott, 1998). Bower (1986: 59) observes that "a general manager sponsor a project when he believes it will be in his interest to do so rather than not to do so, given his understanding of 'the rules of the game'". Furthermore, "politics concern the creation of legitimacy for certain ideas, values, and demands – not just action performed as a result of previously acquired legitimacy" (Pettigrew, 1977: 85). The socio-political processes that occur during SID making has, however, not been documented.

SID making normally results in change and researchers e.g. Dawson (2003) and Pettigrew (1973) have recognised that change is often politicized. Organisational power and politics literature is extensive (Vigoda, 2003) and can be divided into two broad strands: macro-political and micro-political strands. The macro-political strand deals with organisational power's structural bases and the role played by coalitions in supporting group agendas (Pettigrew & McNulty, 1995; Pfeffer, 1992; and Bacharach & Lawler, 1981). In contrast, micro-political strand deals with individual behaviour relations and perceptions (Perrewé *et*

al., 2000; Ferris *et al.*, 1996; Gandz & Murray, 1980; and Burns, 1961). Narayanan & Fahey (1982) noted that organisational decision outcomes are the end result of a political power and coalition process. However, the extent to which this is true in SID making remains to be explored. Literature on the extent to which political power and coalition are exercised in SID making at the expense of objectivity is lacking. With regard to the nature of managerial involvement in SID making, the questions that this study seeks to answer are: how are organisational structural bases displayed during SID making and what role do coalitions play in advancing collective agendas? How is individual behaviour exhibited and what role do personal agendas play?

Yang (2003) studied the impacts of organisational political factors on decision making in human resource development, the political approach looked at the organisations as a collection or a coalition of individuals pursuing their own self-interests. Any series of actions and events involving individuals is bound to be shrouded in conflicts, and the SID making process should not be an exception. However, whether coalitions are formed during SID making by managers to strengthen their bargaining and negotiating positions in the wake of conflict has missed the focus of researchers. The stages of the SID process at which coalitions are formed, also need to be addressed.

Bass & Ryterband (1979) observe that group's decision is likely to be more risky than a single individual's decision. They also examined the influence that group behaviour has on the decision making process: a sociological dimension. Although decision making is often considered to be an individual psychological process, as discussed in **subsection 2.2.1**, organisational decision making is a social and political process, and sociological and political factors impact on the process (Yang, 2003). Indeed researchers, e.g. Allison (1971), propose three basic models of decision making *viz.*: the *rational model* (which views decision making as an individual psychological process); the *organisational model*; and the *political model*.

How politics are exhibited during SIDs is lacking in the literature, as is the perception of organisational politics by managers involved in SIDs. The literature has also not tackled the nature of organisational politics that apply to SID making; and how managers get involved in organisational politics during SID making. This study in investigating how managers behave during SID making, looks at the socio-political processes that occur during SID making and how they impact on managerial judgement and involvement in SIDs.

2.2.3 Sociological Perspectives

Several researchers have looked at SID making and related concepts from sociological perspectives. For example Bower (1986) in his work, which was first published in 1970, looked at the investment decision process as a social process. Cooper (1975), based on the work by Cyert & March's (1963) on behavioural theory of the firm, challenged the application of economic rationality to investment appraisal. Based on the results of his analysis of the evident theory-practice gap in capital budgeting, Cooper (*op cit.*) discarded the hypothesis that it could have been due to the lack of knowledge of probability theory and cash flow estimation techniques in firms. According to him **social subsystem** provides a better explanation of the existence of this gap. He concluded that since a firm cannot behave as a decision making unit apart from the individuals within it, economic rationality does not hold (Cooper, *ibid.*). Bass (1983:100) considers the decision making process to include "activation of individuals and units, mobilization of others into coalition, negotiation with other units and coalitions and compromise, accommodation or consensus to reach final choice".

Indeed, most of the decisions a manager makes involve activities of his subordinates. Simon (1960), and Cyert & March (1963, 1992) provide evidence that self-interest of individuals and subsystems within the composition of the firm provide more impetus for their actions than the often fuzzy corporate objectives. In line with the evidence provided by these researchers, Cooper (1975) argues that the concept of maximization of an organization's utility has no immediate meaning since an organisation does not have a brain of its own; and patterns of the manager's behaviour associated with his different roles in an

organisation explains the decision making process. Nevertheless, if we are ready to make the limiting assumption that there are mechanisms, which ensure that all members in an organisation behave in a way that result into one "well ordered preference function", we may attach some meaning to the utility concept (Cooper, *ibid.*:2000). All these studies highlight the role of managers' behaviour in organisational decision making; however, they do not enhance our understanding of how managers behave during the SID process.

Other researchers, e.g. Hargreaves-Heap (1989), Hargreaves-Heap *et al.* (1992), and Jones & Dugdale (1994), have also looked at the social perspectives of decision making. Hargreaves, *et al.* (Hargreaves-Heap, 1989; Hargreaves-Heap *et al.*, 1992), have acknowledged that the assumption that a sole logic or principle steers decision (as held by neoclassical economists) ignores differing proof from the social sciences. It has been recognized by various researchers e.g. Northcott (1991) that decision making can be seen as a social process, and that as a result, managers may not always behave in an economically rational way as advocated by conventional economists (Simon; 1957; Hargreaves-Heap, 1989).

The literature on sociological perspectives of investment appraisal concentrates on the failure of economic rationality to explain activities during the capital budgeting process, and explain them in terms of social subsystems within organizations. The literature has not explicitly looked at the impact of the social subsystems on managers' involvement in strategic investment decisions. It has not addressed the impacts of group processes (consensus) on SID making; how consensus is achieved during SID making; and the impacts of characteristics of managers on gaining consensus. This study, by investigating how managers get involved in and behave during the SID process, tackles these aspects of consensus.

Literature on psychology-based perspectives of SIDs, organisational politics and sociological perspectives of SIDs relate to the concepts of intuition, heuristics, framing and group processes (consensus and socio-political). However, managerial judgement cuts across these areas and a review of managerial judgement literature is significant to this study.

2.2.4 Managerial Judgement

According to Burke & Walker (2003) managerial process takes place during the determination of strategic issues, identification of alternatives, and the selection of the best alternative's stages of the decision process. Nevertheless, it is evident in the body of literature on investment appraisal and capital budgeting that managerial judgement may also influence the other stages.

Mulligan & Hastie (2005), in their study to determine whether or not an explanation-based approach can be used in making financial investment judgement, extended the approach of managerial judgement to financial investment decisions. Although their study concentrated on stock market investment judgement, in one of the experiments they asked participants to make long-term investment decisions. They found that the behaviour of the 10 male and 50 female psychology students who participated in the study was influenced by the information available as well as how the information is presented. They referred to this as the "order-of-information" (*ibid*: 154) effect and noted that in the context of traditional theories of investment finance, the effect is clearly irrational but is very important in every day judgement task. This finding about the impact of *information* on financial investment decisions is similar to the findings of other researchers (e.g. Trabasso & Bartolone, 2003; Simon & Holyoak, 2002; Kintsch, 1998; and Koehler, 1996) on the role of comprehension processes.

These researchers studied comprehension processes in relation to general basic judgement and decision situations, accounts for hindsight, counterfactual reasoning and base rate neglect effects. They have not looked at how managers exercise managerial judgement at various stages of the SID process, and the impact of framing of the information on their judgement. This study looks at how managers get involved in SIDs and in the process investigates the organisational requirement for presentation of SID information.

Madsen (1998) explored managerial judgement of export performance. He interviewed export managers in Small and Medium Enterprises (SMEs) in seven experienced export

firms in order to identify managerial perceptions and practices when assessing export performance. He studied the dimensions and components involved in the evaluation of export performance. He noted that when studying managerial judgement, it is vital to investigate the "frame of reference" (*ibid*: 83) used by managers; and the "theory-in-use" (*ibid*) approach is very useful to understanding any phenomenon associated with decision making by managers. The study tackled the *knowledge* and *experience* dimension of managerial decision making and he argues that "knowledge about the phenomenon ultimately is personal because knowledge originates from mapping of experience gathered under specific circumstances" (*ibid*).

Most experienced professionals employ intuition in exercising judgement (Regel, 2003). Intuition plays a significant role in the work of decision makers and studies by Burke & Miller (1999) and others indicate that intuition is a vital component of decision making. Intuition is the immediate cognizance or conviction, without rational thought, and intuitive decision making is employed where there is no precise decision rule or strategy. Cognitive continuum theory treats the environment and the decision maker as separate systems (Hammond, 1990). It gives considerations to: the specific task at hand, the manner in which information is presented and the decision maker's cognitive activity. Strategic cognition plays a very important role in the diagnosis of strategic issues and formulation of problems (Schwenk, 1988). In business, the concept of intuitive decision making causes people's view to be polarised. Hammond (1990) puts forward an analytical/quasi-analytical/intuitive continuum, with the quasi-analytical (also referred to as common sense) decision lying between the two extremes.

Analytical decision making is the step-by-step conscious logically defensible problem-solving process. On the contrary, intuition is a non-conscious process where the decision maker is "unable to acknowledge experiencing the source of thought, memory, action or percept" (Regel, 2003: 33). Where in making a decision, the process or facts that may be used to arrive at a choice are not consciously available to the decision maker; intuitive judgement (**Section 1.3**) takes place. The decision maker using intuition, non-consciously

learn the underlying structure of the problem and transfers the knowledge from one complex system to new similar systems. He is however unaware of the structural interrelationships.

In accounting work, "managers should combine intuitive and analytical judgements, even if they come from the same person" (Regel, 2003: 34). If the decision maker looks actively for analytical approach (structure), the correct relationships are easily found (Shapiro & Spence, 1997). As Regel (2003: 35) noted, "less structured problems, such as corporate strategy formulation and research lend themselves to the intuitive mode". The application of the intuitive mode in investment decisions is illustrated by Rowan (1986: 13). He documented how Ray Kroc made the decision to acquire what is now Mc Donald's from its original owners. Kroc said, "I'm not a gambler and I didn't have that kind of money, but my funny bone instinct kept urging me on. So I closed my office door, cussed up and down, and threw things out the window. Then I called my lawyer and said, 'Take it'!" When exercising managerial judgement, the position on the analytical/intuitive continuum where the decision maker should operate should depend on the underlying structure of the problem. The more complex the underlying structure, the more use should be made of intuitive judgement as compared to analytical judgement. With regard to the application of intuitive and analytical judgement, Shapiro & Spence (1997: 67) provide a good guide:

> "Intuition; it appears, is most valuable when used in conjunction with analytical reasoning. Ideally one should first intuit a gut-level reaction to a particular problem, write down the response, and then engage in analytical reasoning. Both estimates should be combined. The relative weight to attach to intuition vis-à-vis analytical reasoning depends on the problem's degree of structuredness. Greater emphasis should be placed on intuition when dealing with the kinds of problems that require judgement and frequently find their way into the hands of senior management."

Hammond (1990), Shapiro & Spence (1997), Madsen (1998), Burke & Miller (1999), and Regel (2003) have looked at the role of knowledge, experience, and intuition during decision making. Rowan (1986), illustrates the use of intuitive judgement in investment decisions. However, the structures underlying SIDs are very complex, which would imply more use of intuitive judgement, but the literature on managerial judgement is lacking on

the use of intuitive, as opposed to analytical, judgement during SID making. This study looks at what managers do during SIDs and investigates the extent of the use of intuitive as opposed to analytical judgement (nature of managerial judgement) in SIDs.

2.3 Why Study the Nature of Managerial Involvement in SIDs?

Literature on managerial involvement in SIDs is lacking in the literature on investment decision and capital budgeting. Involvement is the extent to which there are individual managers or group of managers with interests in SID, who have some influence on the process and the final decision reached (Butler *et al.*, 1993; Hickson *et al.*, 1986). Although their level of influence may vary, managers perform an important role in the SID process. The individuals involved in SID may be functional managers or members of a functional managerial group and work on some aspect of the decision; however, they may not see the whole process through to conclusion.

Interaction between managers is an important aspect of the nature of managerial involvement in SID. Who would get involved in the process, might depend on the patterns of influence among the managers participating in the SID. The patterns of influence, however, take place against a background of interests and organisational power, which determines who gets involved, who has most influence over the direction of the decision, the extent to which external influence affects the managerial decision, and the manner in which authority within the organisation is exercised (Butler *et al.*, 1993). The exercise of authority is a key characteristic of how people exert influence during SID and the features of this authority might vary between managerial decisions. One source of influence in the SID process is top management's guidance and control over the process. This might affect involvement and the degree of the top management's influence may vary among organisations. This study, among other issues investigated how top management's influence impact on involvement in SID. Individuals require motivation to get involved in any matter, and involvement in SID is not an exception. One source of motivation is the extent to which the SID would have career implications for the participants (Butler *et al.* (1993).

The review in this chapter has identified a number of areas that are lacking from the SID literature. Knowledge adjustment during the SID process seems not to be documented. Literature on the application of intuition, heuristics and group processes during SID making and factors that enhance/enable or inhibit managerial involvement appear to be fragmented. The idea of enhancing/enabling[1] and inhibiting factors is adapted from Adler & Borys (1996), who used the terms "enabling" and "coercive" to categorise bureaucracy. However, in this study the researcher used the terms "enhancing/enabling" and inhibiting. "Inhibiting" suits the study, which looks at behavioural aspects of SID. Ahrens & Chapman (2004) distinguishes between enabling and coercive use of management control systems (MCSs). Enabling use of MCS would allow employees to "deal directly with the inevitable contingencies in their work", whilst coercive use "refers to the stereotypical top-down control approach that emphasises centralization and preplanning" (Ahrens & Chapman, 2004:271). The distinction of this study is that it seeks to identify contextual and psychological factors that enhance/enable or inhibit managerial judgement and involvement in SIDs. The terms **enhancers/enablers** and **inhibitors** as used in this study are defined in the Glossary of Terms and page 150.

Furthermore, the achievement, by SID decision makers, of individual and group decisions within organisational context needs to be explored. Similarly, organisational requirement for presentation of SID information is lacking from the literature and needs to be investigated. Literature on the extent of the use of intuitive rather than analytical judgement during the SID process is also fragmented. The perception and use of organisational politics (formation of coalitions and role of personal agendas) by managers, during the SID process, is lacking. Also patchy is literature on the how managers across firms are involved in the various stages of SID process.

There is therefore a need to investigate these areas and this study on the nature of managerial involvement in SID attempts to make a contribution in those areas. It extends Harris' (1999) investment appraisal model; builds on psychology work (intuition, heuristics

[1] The terms **enhancing** and **enabling** have been used interchangeably throughout the thesis.

and group processes); explores the factors which enhance or inhibit managerial involvement in SIDs; and the nature of such involvement.

2.4 Conclusions

Capital budgeting literature shows that most studies focused on managers' choice of investment appraisal techniques, because there is a range of capital budgeting financial evaluation techniques that can be used. Literature on investment appraisal and capital budgeting has focussed generally on answering the following questions:

1. What are the capital budgeting financial evaluation techniques across organisations? That is, how do managers analyse the costs and benefits that might be derived from an investment?
2. Which of the techniques of investment appraisal are commonly applied by managers?
3. What is the relationship between the use of sophisticated capital budgeting evaluation tools and procedures and firms' performance?
4. What are the phases of the capital budgeting process?
5. How do decision makers view capital budgeting process?
6. How would cognitive processes of decision makers explain their inclusion of opportunity costs in project evaluation?
7. How would cognitive processes explain escalation of commitment or abandonment of failing investments?
8. What is the impact of groups and teams on individual decision maker's escalation disposition?
9. What is the effect of incentives and utilities on capital budgeting decisions?
10. How would decision makers' knowledge structures and cognitive styles affect their investment decisions?
11. How do managers incorporate risk and uncertainty in investment appraisal?
12. What is the role of information asymmetry in explaining the variety of capital budgeting processes and controls?
13. Is post completion review conducted by firms for all investments?
14. How is the information obtained from post completion audit utilised?

To answer these questions, researchers have drawn upon economic theory of rationality, agency theory, contingency theory, organisational theories and sociological theories.

The nature of managerial involvement in strategic investment decision making has not been given as much attention by scholars in accounting, economics and finance as other aspects of investment decisions e.g. investment appraisal techniques. However, managerial involvement in SIDs is an integral part of the SIDs including the *organisational context within which the decisions are made*, the exercise of *managerial judgement*, and the *SID process*. Managerial involvement in SIDs would normally be expected to be influenced by: organisational context within which the SIDs are made; the SID process itself; and other factors that either enhance or inhibit managers' involvement in SIDs. However, the nature of such involvement and its impact on the SIDs made has not been widely investigated.

This study investigated the nature of managerial involvement in SID making and answers the following eight questions:

IX. What stages does the SID process go through?
X. Are the stages of the SID process, similar across organisations? If not, how do they differ?
XI. Who gets involved in SID making?
XII. When do managers get involved in the SID process and in which activities?
XIII. What do managers do during SID making?
XIV. How do managers get involved in SID making?
XV. How do managers behave in SID making?
XVI. What influences the nature of involvement of the managers in SID making?

It was conducted in two phases: analytic survey and case studies. The survey questionnaire (**Section 3.2.3**) was based on the review of relevant literature, while the interview protocol (**Section 3.2.4**) was based on the analysis of the survey data. The construction of the questionnaire (**Appendix 2**) and the interview protocol (**Appendix 4**) are discussed in **Chapter 3**.

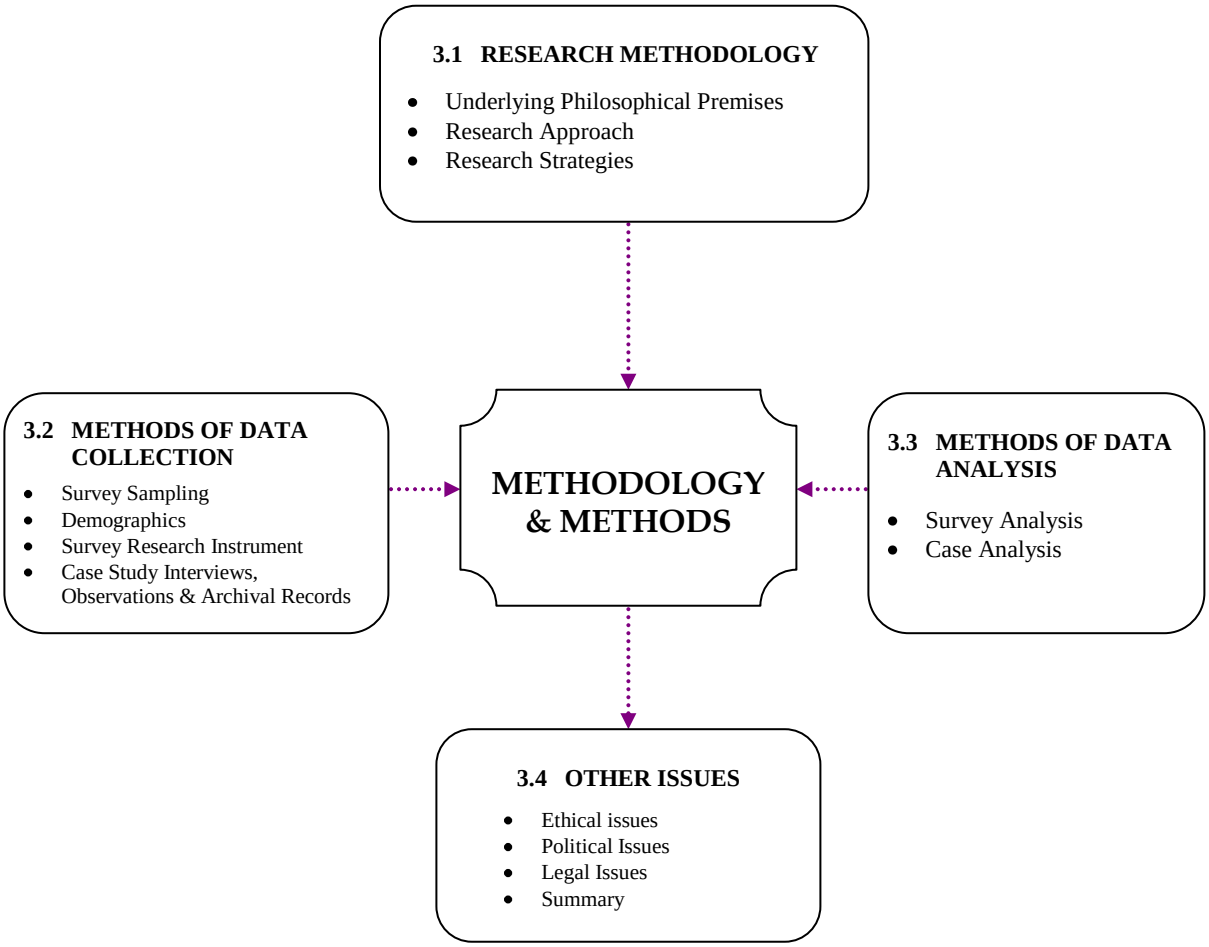
Chapter Three

Methodology & Methods

Chapter 3

Methodology and Methods

General Overview



This chapter discusses the procedural, analytical and conceptual framework that has been used in this study. The framework provides an approach to the research problem, which was operationalised into a research programme or process, referred to as a *research methodology*, which Saunders *et al.* (2003:481) has defined as:

> "The theory of how research should be undertaken, including the theoretical and philosophical assumptions upon which research is based and the implications of these for the method or methods adopted."

Similarly Leedy (1993:121) defines methodology as:

> "an operational framework within which the facts are placed so that their meaning may be seen more clearly"

The methodology used for this study puts the research into context, in terms of: *epistemological assumptions*, the *research strategy* (the basic philosophical orientation of the research), the *methods* that are used for *data collection* and the *techniques* used to *analyse* the *data* collected. It was informed by the research objective, which determined the research questions as presented in **Chapter 1.**

3.1 Research Methodology

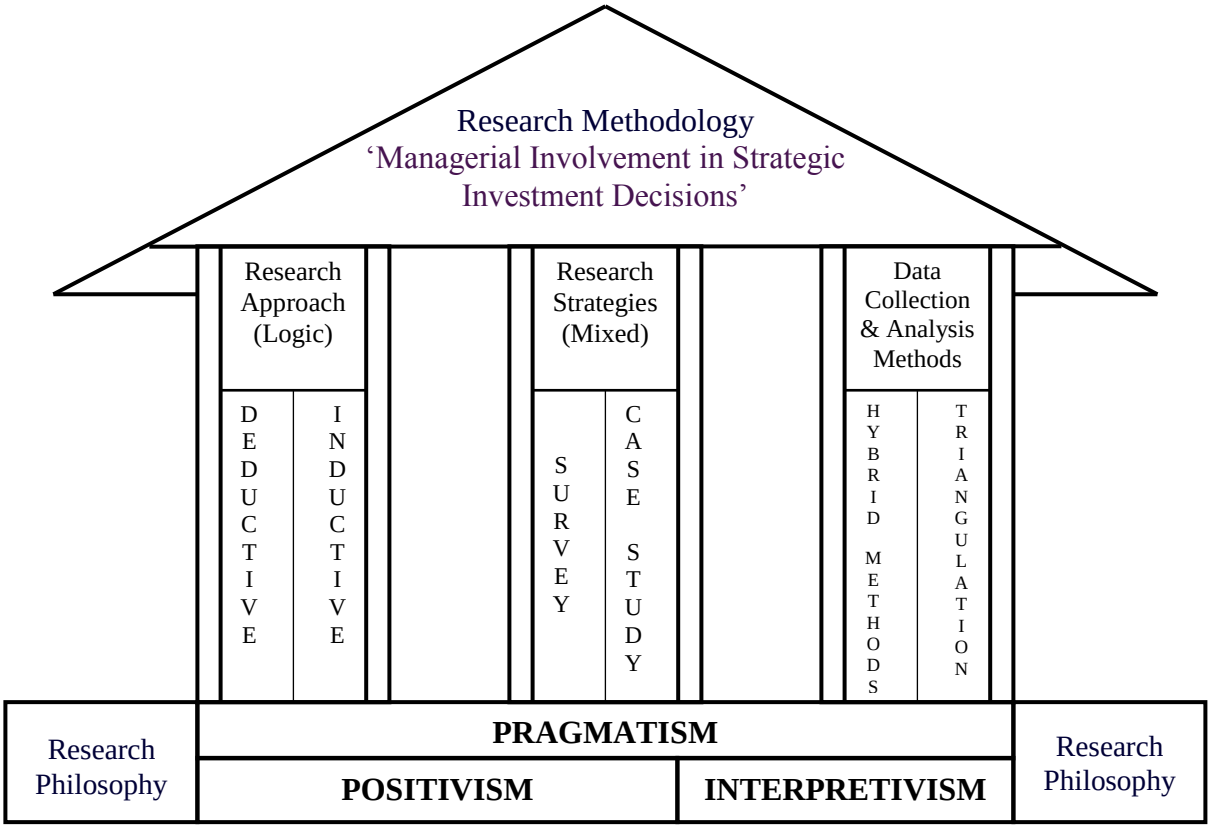
The methodology to investigate **'The Nature of Managerial Involvement in Strategic Investment Decision Making'** employed a multi-method approach and triangulation of methods and data. It drew on the positivist and interpretivist research paradigms and is depicted in **Figure 3.1**. The researcher likens the methodology to a 'building'; with a foundation (*the philosophical premises*), the pillars (consisting of the *research approach*, the *research strategies* and the *data collection* and *analysis methods*), supporting the overall structure (the *operational framework*).

3.1.1 Underlying Philosophical Premises

Philosophical ideas are usually "hidden" in research (Slife & Williams, 1995) but impacts upon the practice of research; therefore they have to be identified. The philosophical basis for this research study was *pragmatism*. According to Lincoln & Guba (1994, 2000) the worldwide view or belief system that guides pragmatists is a blend of the conventional *positivist* and *interpretivist* paradigms. In management and social sciences literature, one of the most common distinctions between research paradigms is that between positivism and

interpretivism (Riley *et al.*, 2000). The pragmatic paradigm has emerged as a result of researchers e.g. Howe (1988) and Reichardt & Rallis (1994) attempt to reconcile the positivist and interpretivist paradigms.

Figure 3.1 Diagrammatic Representation of the Research Methodology



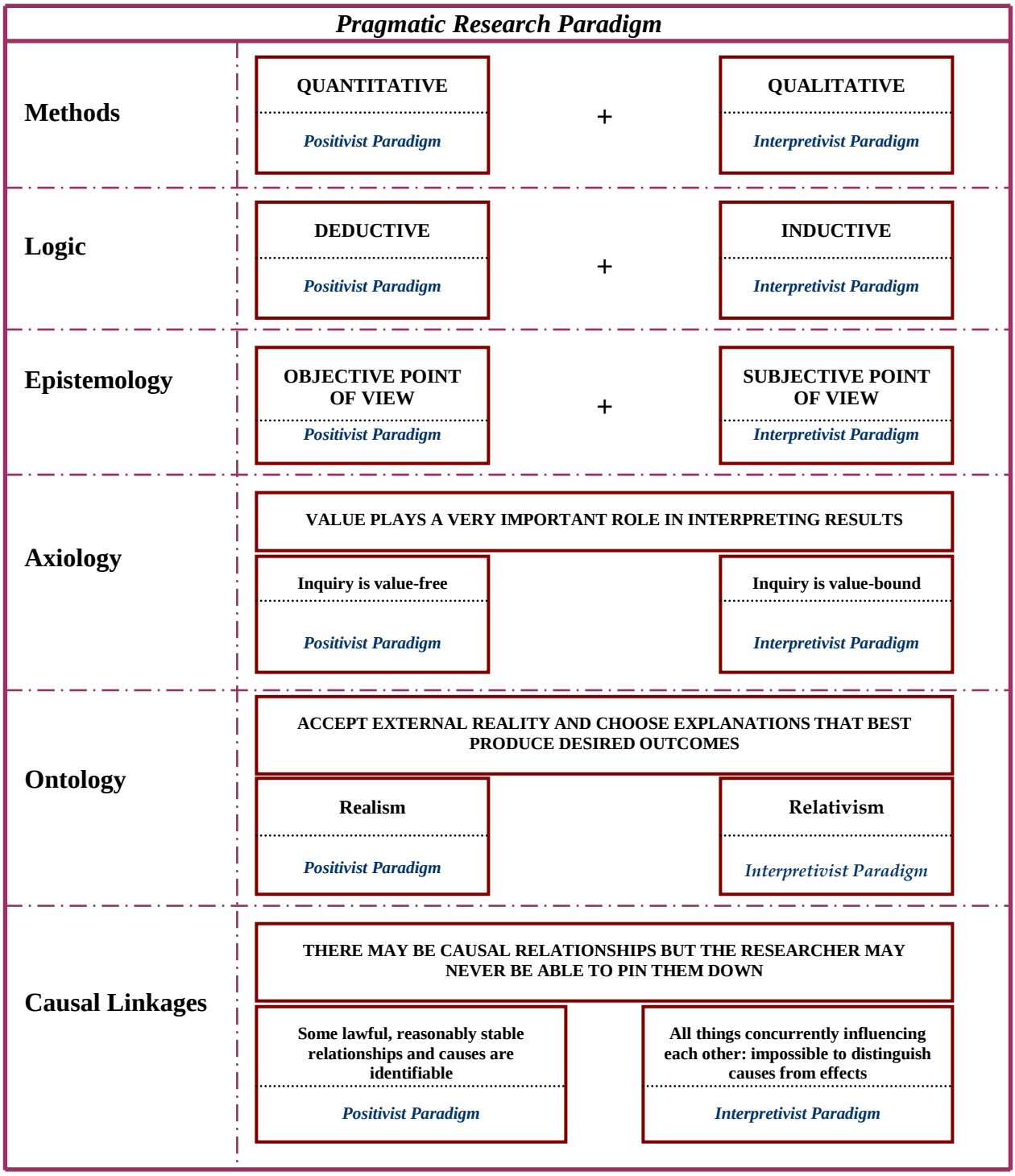
The philosophical underpinning for this study vis-à-vis the traditional *positivist* and *interpretivist* research paradigms is depicted in **Figure 3.2**. The researcher believes that the days of positivist paradigm vs. interpretivist paradigm are long gone. Concentration should be on how the research practice lies on the continuum between the two (Newman & Benz, 1998). Management accounting research has also in recent years attempted to overcome the distinction between positivist (objective) and interpretivist (subjective) studies. More interpretive studies are being conducted (Ahrens, 2008), and researchers have been developing approaches that investigate accounting phenomena within the context in which

they operate. As **Figure 3.2** illustrates, the *epistemology* the researcher adopted cut across paradigms and combines both subjectivist (interpretivism) and objectivist (positivism) features. The researcher agrees with the argument of Kakkuri-Knuutila *et al.* (2008) that strict distinction between objective and subjective approaches to research is senseless.

The term interpretive is normally used to indicate, broadly, social reality that emerges from a study and is subjectively created but made objective in social interaction (Ahrens & Chapman, 2006; Chua, 1986; Tomkins & Groves 1983). In literature, interpretive is often used interchangeably with: *qualitative*, *phenomenological*, and *naturalistic*. In this study an *interpretive approach* was used because when managers are involved in SIDs, they draw upon a stream of managerial experiences. Their actions during SIDs would be "intrinsically endowed with subjective meaning" (Chua, 1986: 613). The managers would continuously order and classify their experiences on the current SID according to "interpretive schemes" (*ibid.*). However during SIDs managers interact with other managers and stakeholders. They would therefore interpret their actions and those of others, making the process social and "intersubjective" (*ibid.*). The *positivist approach* was adopted because; as managers interpret other managers' and their own actions during an SID, meanings and norms become objectively real. It was used to discover how widely applicable the processes and actions of managers involved in SIDs are across different organisations and industries. Thus a comprehensive social reality that confronts the managers would be comparable to the natural world. The term positivism is used to indicate that "true knowledge is scientific, in the sense of describing the co-existence and succession of observable phenomena" (Bullock and Trombley, 1999: 669).

This sequential study adopted a combination of quantitative and qualitative *methods*. The first phase surveyed (using an analytic research instrument) various themes of the SID process and managerial involvement (behaviour of individuals) in the process (see **Section 3.1.3**). The second phase investigated in depth, using cases, the nature of managerial experiences of factors identified in the first phase, which would not have been achieved using the survey.

Figure 3.2 Position of the Pragmatic Paradigm vis-à-vis the traditional Positivist and Interpretivist Paradigms



The *ontology* was a combination of realism and relativism. SID scenarios are a consequence of a set of situations and individuals. As discussed in **Chapters 5** and **6** the scenarios investigated in this study were unique and complex because the business environment changes rapidly. The researcher therefore studied the nature of managerial involvement relative to the organisational context. Interpretivists' arguments were very relevant to such scenarios (and the study) and therefore persuasive. The researcher was however aware that the issue of generalisability crops up when applying the interpretivist philosophy to research. Nevertheless generalisability was not as important in the second phase of the study where gaining understanding of examples of managerial behaviour was the objective.

In this study, after factors of SIDs were identified using the survey, it was necessary to follow them up to gain a deeper understanding of the nature of managerial involvement in SIDs. The best way to do so was through follow-up interviews of managers involved in SIDs. However, the managers were individuals prone to developing subjective meanings of their experiences of the SID phenomena. These meanings were diverse and multiple, and the researcher looked for: first the general views of managers (a 32-item analytic questionnaire with each item divided into sub-items); and then conducted fairly structured interviews in the second phase to follow-up the factors that arose. Most of the interview questions allowed the interviewees to explore the meaning of the SID situation in which they were involved. This meaning would typically be shaped by their discussions and interactions with others during the SID process. The researcher relied, as much as possible, on the participants' views on SIDs within the contexts in which they worked. In attempting to make sense of the meanings others have about the world of SID, the researcher was also aware that his own accounting background and previous employment could impact on his interpretation, and acknowledges that this interpretation flows from his personal, cultural and historical experiences. Thus the *axiology* adopted combined both value-free factor analysis and value-bound interpretation of interview data.

The research philosophy adopted for this research therefore combined elements of positivist and interpretivist paradigms, i.e. *pragmatism*. The practice of research, however, entails more than philosophical premises. The philosophical postulations ought to be combined with broad research strategies and methods. As depicted in **Figure 3.1** and further discussed in the next section, the research approach adopted for this study was principally a deductive logic.

3.1.2 The Research Approach

The research logic followed from the philosophical ideas discussed above. It was mainly *deductive* but incorporated elements of *inductive approaches*.

Deductive Component of the Research Approach

This study formulated the research aim and questions (**Chapter 1**) from existing theories, concepts and models by analysing the ideas and concepts available in the literature (Remenyi *et al.*, 1998). The deductive element of the approach involved the design of a 32-item research instrument, developed from the review of relevant literature, and analysing the data collected using the survey and case study research strategies (**Section 3.1.3**). Also to aid, organise and direct the analysis of data collected (Yin, 2003), an analytic framework (**Figure 5.1**) was devised. The analytical procedure of **template analysis** (see below), which was used for the study falls under the deductive approach and included:

Pattern (Theme) Matching: A survey instrument which categorised various psychology concepts of decision making, drawn from the literature, was used to collect data. The data was scaled and explanations were obtained by matching patterns that emerged in the data with the patterns predicted when the instrument was developed. Factor analysis was undertaken to identify clusters of factors and probable explanation of the findings where similar patterns arose.

Explanation Building: Explanations were derived for the patterns that emerged from the questionnaire data and relevant to the cases. This was an analytic induction (Saunders *et al*., 2007; Johnson, 2004) that was not aimed at creating a grounded theory. Analytic Induction is "the intensive examination of a strategically selected number of cases so as to empirically establish the causes of a specific phenomenon" (Johnson, 2004). It is a version of explanation building (Yin, 2003), which is inductively led and commences with a less defined explanation, not derived from theory. The case studies commenced with an incomplete picture of the nature of managerial involvement in SIDs, which was then illustrated by selected cases. The case sample was primarily based on the purposively selected survey sample.

The explanation building in this study went through five steps:

1. A research instrument was developed from psychological factors and models of decision making found in relevant literature, and the researcher then sought to find out if these would apply to SID making across multiple business sectors.
2. Survey data was collected and the findings used to build explanations for the patterns and constructs that emerged from factor analysis.
3. The constructs identified in step 2 were followed-up using multiple case studies and explanations were explored, of why and how they *enhance/enable* or *inhibit* (Adler & Borys, 1996) managerial judgement and involvement in SIDs.
4. Interview data was collected for the first case using a template of the identified constructs to structure the interview.
5. Iterations of the process were conducted for the remaining cases and the data used to compare findings using the template analysis.

Inductive Component of the Research Approach

As mentioned earlier, the study incorporated a small element of inductive research approaches. Survey data collected using the questionnaire was analysed to identify issues to follow up using case studies (Yin, 2003). The survey findings formed the basis of the analytical framework (**Figure 5.1**) that guided the case study. The inductive element involved the use of some open questions in addition to the structured interviews and observations; analysis of the data to illuminate the themes and categories; and transposing

this to past experiences and literature. The following aspects of **template analysis** were used.

Data Display and Analysis (Miles & Huberman, 1994): The researcher conducted three simultaneous processes of: *data reduction*, *data display*, and *drawing and verification of conclusions*.

1. **Data Reduction**: summaries of the interview data were extracted and selected parts focussed on to transform and condense it. The interviews, observations, and relevant internal company documents were summarised; data categorised; and notes written.
2. **Data Display**: the data was organised and assembled into diagrammatic and visual displays. Tables of themes and cases (**Chapter 6**) were drawn and networks of stages of the SID process and executive knowledge adjustments were devised to indicate relationships between the stages of the process. Networks of boxes (**Chapter 5**) containing labels and brief descriptions of the key constructs that summarise the data collected were constructed. The tables and networks went through several iterations, a process which helped the researcher develop analytical thinking and the most appropriate presentation of the data. Miles and Huberman's (1994) matrix data displays were used, as this suited the study (analysis of patterns in data collected across six research sites on a limited realm of prospectively related variables (Eisenhardt, 1989b)). The matrix display allowed the use of a template and offered a means of identifying themes in the data, categorising them and identifying their effect in enhancing or inhibiting SIDs.
3. **Drawing and Verification of Conclusions**: the data displays allowed comparisons to be made; and key themes, patterns, trends and relationships that were evident in the data to be recognised. In other words they aided interpretation of data and permitted meaning to be drawn from it, thus helping the drawing and verification of conclusions.

Template Analysis: Template analysis combines inductive and deductive approaches to qualitative analysis (King, 2004). It is similar to the data display and analysis (Miles & Huberman, 1994) approach. Both offer a flexible route to analysis since they allow the

researcher to adapt their use to his own research (King, 2004). King (*op cit.*) has documented that template analysis resembles grounded theory **but grounded theory does not permit prior designation of categories to analyse data**. Template analysis, as employed in this study, involved categorising and unitising data as described in **Section 3.3.2**. Data were categorised and analysed to identify and explore themes, patterns and relationships. The categories were hierarchical with three levels (**Appendix 5** and **Chapter 5**): the lower levels representing greater depth of analysis.

A **template** is a list of codes or categories established to analyse the data collected. The template categories for this study were predetermined from the survey analysis; however their levels in the template hierarchy were slightly revised following analysis of interview transcripts and observation notes (see below for examples). This was an iterative process and the template was modified as categories were reclassified accordingly until all the data collected had been categorised and fully analysed. It allowed emergent issues, positively enhancing and negatively inhibiting SIDs, which arose during the data collection and analysis to be incorporated. Examples of how the template was revised:

- where the researcher identified a new relevant issue a category was inserted into the hierarchy, e.g. when it became apparent that different organisations emphasised different information during the SID process, "*information emphasised*" was included as a category under *reaction to SID information* (**Appendix 5**);
- categories that were not needed were deleted, e.g. when it became unnecessary to include company performance, in terms of turnover and profits among the contextual factors, the category "*company performance*" was deleted;
- in order to maintain a logical flow within the hierarchy, or signify the level of importance of an issue, the level of some of the categories within the hierarchy were altered; and
- some categories were reclassified to maintain relevance and the level of importance.

However, the researcher is aware that a template is not a theoretical model (King, 2004) and that template analysis has a limitation in that it may blur the distinction between template and model. In this study, the template was only used to represent the process of

coding of the case study data in order to identify themes in it. The template also provided a structure for discussion of the key findings (**Chapter 7**).

Summary: A deductive approach was combined with a small element of inductive approach in line with the pragmatist philosophy for this study because it generated answers to the research questions (**Section 1.1**). A pragmatic approach ensured flexibility, and enabled adjustments to procedures, which became necessary as a result of events that were not anticipated at the start of the study, to be accommodated. For example, the difficulty in obtaining access to selected companies occurred when the survey was already in progress and the combination allowed the researcher to revise the survey sample size and use case studies to investigate further factors that were identified but not fully explained by the survey data. Moreover, over the last decade, the use of traditional approaches built on the philosophies of positivism, empiricism and instrumentalism for research in Economics, Finance and Accounting has been questioned (Humphrey, 2001; Johnson & Macintosh, 1997; Humphrey & Scapens, 1996; Laughlin, 1995). The mix approach aimed at allowing the strengths of one approach to counteract the criticisms often levelled against another approach.

3.1.3 The Research Strategies

Earlier studies of decision making process, e.g. Pettigrew (1973), have emphasised the use of case studies, often studying a single case in great depth, e.g. Harris (1999). Some of the studies e.g. Bower (1986) and Marsh *et al.* (1988) used a comparative case method. This study employed a strategy of "sequential procedures" (Creswell, 2003: 16) or "sequential studies" (Tashakkori & Teddlie, 2003; Tashakkori & Teddlie, 1998:18), i.e. survey followed by case studies. The sequential or two-phase nature of this study is presented in **Figure 1.3**.

The survey aimed to: see how widely applicable processes (from prior case study work) and behaviours (from prior experimental work) are across managers/organisations, and identify

key constructs worthy of further investigation via case studies. Whilst the case studies aimed to: explore more detail of SID involvement by managers in the context of real projects/organisations, and explore which behaviours are influenced by the organisational context (enhancing or inhibiting factors).

The mixed strategy was adopted in order to achieve high quality results that only the mixture offered. It allowed for the measurement of the extent of phenomena from literature across the medium-sized sample for the study to find out if single case study model(s) are more widely applicable. It also enabled further contextual exploration to observe variations in applicability of commonly found factors.

Rationale for the Choice of Strategies

In the field of Management Accounting, several surveys have been undertaken by researchers, e.g. Coad (1999), Wei & Christodoulou (1997), Pike (1996), Sangster (1993), Drury *et al.* (1993), Ho & Pike (1991), Mills & Herbert (1987), McIntyre & Coulthurst (1986), Pike (1982), and Scapens *et al.* (1982), and investigated the various aspects of investment decision-making process. The use of survey research strategy permitted the researcher to obtain information on the extent of participation of managers, at various levels of an organisation's hierarchy, in SID processes: thus collecting information direct from those involved in SID. The survey produced quantitative or numerical descriptions of key factors of SIDs (**Chapter 4** and **Appendix 2**). The use of the survey strategy allowed a sample of 70 companies to be investigated, and enabled the researcher to identify a sample of nine managers willing to participate further in the case studies. The use of the survey strategy therefore improved accessibility to the companies when the case study phase of the research was embarked upon.

Survey research strategy was, however, combined with the case study strategy so as to: test out the themes and propositions that emerged from the survey, explore the themes in organisational context, and take a holistic view of the nature of managerial involvement in SID. "Many survey studies conclude with the suggestion that insights from the field may

be required to explain unhypothesised results or to explore the process by which variables interact to produce results" (Lillis & Mundy, 2005: 121). Explanations for the insights from the survey were explored during the case study phase.

Case study is "an empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2003: 13). For this study nine managers in six case companies were interviewed to gain deeper insights into the issues contained in the *template for analysis* (**Appendix 5**). As Yin (2003) documented, the best strategy to investigate such issues and phenomena is the case study strategy. Moreover, as Otley (2001) noted, social facts that constitute management accounting practice are highly context-dependent, unstable or difficult to replicate and change over time.

Case study research has been used in various prior studies, e.g. Papadakis (1998), Lu & Heard (1995), Lillis (1992), and Lumijärvi (1991), to investigate aspects of SID similar to the subject area of this study. It is a popular strategy used for studying management accounting within organisational context (Lillis & Mundy, 2005). It might not have been possible to gain a deeper insight into the nature of managerial involvement in SIDs if the survey strategy was used alone. The six case studies were also conducted to identify patterns in observations (Eisenhardt, 1989b).

The combined research strategy included elements of: opinion research to seek views, opinions and experiences of managers involved in SIDs; archival analysis to examine publicly available and other past company documents; and analytical research to apply logic to determine factors that enhance or inhibit (Adler & Borys, 1996) managerial involvement in SIDs. The mixed strategy mainly employed a deductive approach (Buckley *et al.*, 1976) and allowed the researcher to use questionnaire, interviews, observations and archival analysis data collection strategies (discussed later), hence triangulation of data and methods. Prior studies have used various research strategies to study managerial decision-making including role-plays, simulations, experiments, case studies, and action research. This is because managerial decision making takes place under a wide range of situations,

which vary with the individual business organisation within which the decision is being made. Researchers have to adopt strategies which can address such contextual divergences.

3.2 Methods of Data Collection

This study employed methodological triangulation for collection and analysis of data to suit the sequential approach and improve the quality of the data collected and analysis undertaken. This improved the quality, construct validity, external validity and reliability of the study. *Construct validity* refers to approximate truth of propositions, inference, or conclusion, and *external validity* deals with generalisation. There were continuous interactions between the issues being studied and the data being collected (particularly in the 2nd phase). The data collected was mostly qualitative, though some of the qualitative data was translated into quantitative data. These categories of data informed the data analysis techniques adopted. The choice of methods to some extent depended on their feasibility.

3.2.1 Survey Sampling

Population: There are no established criteria for selecting a population for a qualitative study (Moustakas, 1994). However, essential criteria that should be considered in selecting a population require that the participants should:

- have experienced the phenomenon being studied;
- demonstrate an interest in gaining an understanding of the phenomenon's meaning and purpose;
- be willing to engage in a 30 to 45 minutes survey questionnaire or interview and possible follow-up interview;
- allow the entire interview to be digitally recorded; and
- understand that the findings will be published (Moustakas, 1994).

The population for this study comprised managers in UK companies categorised into medium, large and very large based on financial data obtained from Data Stream and FAME. Financial institutions were excluded because their unique characteristics would

mean the results from them could be very different from the results from the other industries.

A list of 1,680 potential companies was extracted from the Data Stream database and forwarded to CIMA to obtain a list of members in senior positions in those companies who would be likely to be involved in SID making. This population is considered to be expert and privileged eye witness to the SID process.

Sample for the study: The selection of participants for this study was based on: whether the managers were in general or senior management positions within their organisations, and being involved in SIDs and having management accounting training. Based on these criteria, the final survey sample for this study was *purposive* to ensure that the sample chosen represented the managers, business organisational settings and activities necessary to provide relevant information on managerial involvement in SIDs. The sample was to include general and senior managers involved in SIDs. The initial aim was to include a broad cross-section of managers, not just those in management accounting roles, by using a snowballing sampling strategy to engage additional participants in the study based on recommendations and referral of CIMA members.

To ease access to potential survey respondents, CIMA members were targeted. They, having management accounting training, are expected to perform various functions and CIMA members in general and senior management were expected to be heavily involved in the SID process. Diversity was incorporated in the study through the participation of CIMA members in various functional managerial positions from a variety of organisations and industries. This allowed for a broad spectrum of information on managerial involvement in SIDs. As seen in **Section 2.1.6** CIMA members perform a variety of functions, and work in organisations operating in various industries; consequently, the sample included managers of various professional and technical backgrounds and experience. Selecting the sample from senior CIMA members allowed the managers

surveyed to locate their evidence of the SID process within their managerial and management accounting experience.

The survey questionnaire was sent to 421 (417 FTSE companies and four MSEs) UK business organisations drawn from across the major industries (**Section 3.2.2**), with the anticipation of registering a 10-20% response rate. The researcher revised the sample due to unwillingness of some companies to participate in the study. The final sample for the survey consisted of 105 managers from 70 companies (a response rate of 17% of companies).

The number of participants in a case study varies from study to study (Creswell, 2002), with qualitative research usually involving only a small number of participants. The small number enhances the ability to establish an in-depth representation of the phenomenon being studied. The sample for the second phase of this study depended on voluntary participation in the follow-up interview of the survey respondents. It could therefore be described as convenient or haphazard; although it was largely drawn from the purposive sample used for the survey. The convenient sample could have led to possible sampling bias; however analysis shows that there is a good spread of industries in the sample.

3.2.2 Demographics

Table 3.1 shows the demographic data from the 105 participants. The demographic information include: the type of organisation, whether the organisation is listed on the London Stock Exchange or not, gender, functional position, and years of service with the company.

The distribution of the 105 participants across industries is listed in the first two columns of **Table 3.1**. The participants were from 25 different industries.

94 of the 105 participants worked in a FTSE company; the remaining 11 were in organisations not listed on the London Stock Exchange.

Table 3.1 Demographics

Type of Organisation		FTSE Companies		Gender		Position of Leadership		Years of Service	
Industry / Sector	***Number***	***FTSE?***	***Number***	***Gender***	***Number***	***Position***	***Number***	***Years***	***Number***
Construction & Building	12	FTSE	94	Male	105	Finance Director	23	0 – 5	26
Support Services	11	Others	11	Female	Nil	Financial Controller	12	6 – 10	25
Other Utilities	10					Accountant	10	11 – 15	19
Transport	8					Chief Executive Officer	10	16 – 20	16
Beverages	6					Manager	9	20 or over	19
Aerospace & Defence	5					Finance Manager	7		
Electronics & Electric	5					Vice President	7		
Telecom Services	5					Director	5		
Healthcare	5					Process Lead	3		
Pharmaceuticals & Biotech	4					Chief Finance Officer	2		
Steel & Other Metals	4					Controller	2		
Automobiles & Parts	3					IT Manager	2		
Oil & Gas	3					Others	13		
Retail General	3								
Food Producers & Processors	2								
Leisure & Hotels	2								
Media & Entertainment	2								
Personal Care & House	2								
Real Estate	2								
Software & Services	2								
Others	9								
Total	**105**		**105**		**105**		**105**		**105**

All the 105 participants were male. This is probably because most senior positions in organisations in the UK are male dominated. There is serious under representation of women in top managerial position in the UK (Conyon & Mallin, 1997). In 2006 only 10% of the total number of directorship in the FTSE 100 companies was held by women (Personnel Today, 2006).

The 105 participants held various functional positions in their respective organisations, the most common position being Finance Director. **Table 3.1** shows that the participants were from 25 different functional positions.

Years of service ranged from 0 to more than 20. 75% of the participants had 6 years or more of experience.

3.2.3 Survey Research Instrument

The survey research instrument is discussed in this sub-section under the subheadings: 'questions included in the questionnaire' and 'mode of delivery and return of questionnaire'.

Questions Included in the Questionnaire

Questionnaires are very useful for data collection for sequential research that uses mixed methods. The use of questionnaires ensures greater generalisability of the research findings than can be achieved using other methods. According to Gillham (2000:3) questionnaires sit towards the structured end of the "verbal data dimension". This means that the choice of questions asked is important if the research instrument is to adequately address the research objectives and questions.

The researcher determined the questions that were asked and the range of the answers that could be given very carefully. The respondents were given a range of alternatives to choose from. However, the researcher was aware of the downside that the questionnaire could be potentially boring and frustrating for the respondents. To minimise the impact of

this drawback, the researcher put in a lot of development work into the questionnaire. In addition because of the need to establish construct validity, the theoretical constructs that were investigated were clearly defined from literature. There were five iterations of the questionnaire, which were discussed with the supervisors and the research advisor before the questionnaire was piloted on the Executive MBA students, then at a Management Control Association's Conference and the final review undertaken.

The questionnaire (**Appendix 2**) included 32 questions on the context and types of SIDs; stages and nature of the SID process; involvement of managers in the SID process; and application of psychological concepts of heuristics, framing and group consensus. The derivation of the questions from the literature is summarised in **Table 3.2**. The survey questionnaire was set in four sections A, B, C and D. Section A dealt with context and types of SID; Section B with managerial involvement in SID making, the stages and nature of the SID process; Section C with psychological concepts of heuristics, framing, and group processes of consensus and organisational politics; and Section D with other factors.

Questions on stages in and the nature of the SID process: These questions were derived from King (1975), Eisenhardt (1989a), Hammond (1990), Ghosh (1997), Harris (1999), Burke & Walker (2003), and Dutta (2003). This group includes question 10 on stages of the SID process, question 29 on company practices and procedures in SIDs, and question 30 on the use of decision support software. The stages included in Question 10 were based on the seven stages identified by Harris (1999), **Appendix 1**, which was then adjusted and expanded to capture probable managerial activities during the SID process. It was recognised that different organisations might have different SID processes, thus the questions aimed to cast more light on such differences as well as to **confirm the stages identified** in **Table 2.1**. Question 32 gave respondents the opportunity to recommend improvements to the SID process in their company, which may reveal which aspects they did not regard as areas of good practice. Areas of weakness may also be useful for other organisations to benchmark.

Table 3.2 – Derivation of Survey Questions from the Literature

Theme From Literature	Literature Reference	Evidence Collected	Question
Stages in and nature of the SID process	King (1975); Harris (1999); Burke & Walker (2003)	Stages of the SID process	10
	Hammond (1990); Dutta (2003)	Requirements of company procedures for SID making	29
	Eisenhardt (1989a)	Use of decision software (DSS) for SID making	30
	Ghosh (1997)	Managers' recommendations for improvement	32
Heuristics	Rowan (1986); Chenhall & Morris (1991)	Use of intuitive processes and rules of thumb	18
	Tversky & Kahneman (1971, 1974 and 1986); Madsen (1998); Vera-Muñoz (1998)	Use of base values and tolerance ranges (anchoring & adjustment) and experience of similar projects	19
	Shapiro & Spence (1997); Helliar (2002); Regel (2003)	Intuition vs. evaluation in risk assessment	28
Framing	Tversky & Kahneman (1971, 1974 and 1986); Trabasso & Bartolone (2003); Mulligan & Hastie (2005)	Response to up to date information (recency)	21
	Cyert & March (1992)	What sort of information proved problematic	22
	Northcraft & Neale (1986); Mulligan & Hastie (2005)	What sources of information were available to access	23
Consensus	Allison (1969); Bower (1986)	Socio-political processes e.g. lobbying	24
	Narayanan & Faye (1982); Perrewé *et al*. (2000)	How group processes influenced own views	25
	Cooper (1975); Pettigrew & McNulty (1995)	Group behaviour	26
	King (1975); Drory (1993); Yang (2003)	Important factors in reaching agreement	27
Context and types of SID	Contextual Information	Company name (for industry classification)	1
		Job title	2
		Professional background and work experience	3 to 7 and 20
		Types of SID involved in and focus for the survey	8, 9 and 31
Managers' involvement in SID process	Informed by the Gap In Literature	Involvement of internal managers in SIDs	11 and 12
		Involvement of external managers in SIDs	13 and 15
		Nature of involvement	16 and 17

Heuristics questions: The questions were based on Tversky & Kahneman (1971, 1974 and 1986); Rowan (1986), Chenhall & Morris (1991), Shapiro & Spence (1997), Madsen

(1998), Vera-Muñoz (1998), Helliar (2002), and Regel (2003). In this group questions 18 and 19 were designed to discover the use of heuristics, without actually using that term, which may not be considered as everyday language. More familiar terms such as gut feeling or hunches, mental pictures, brainstorming and rules of thumb in SIDs were used. How new project opportunities are compared to previous examples was explored to provide evidence on the availability and representativeness of relevant knowledge and experience during the process. In addition, the use of: stereotypes to classify projects; industry and other benchmarks and base value and tolerance ranges to evaluate projects might be crucial to provide evidence of anchoring and adjustment as part of managerial judgement in SIDs. Question 28 sought to establish the balance between intuitive and analytical approaches to risk assessment in the SID process.

Framing questions: These were based on Tversky & Kahneman (1971, 1974 and 1986); Northcraft & Neale (1986), Cyert & March (1992), Trabasso & Bartolone (2003), and Mulligan & Hastie (2005). Questions 21 to 23 were included on the nature of information available and the influence of how that information is presented on managerial judgement in the SIDs. These questions explored the possible sources of framing bias in the SID process and what sort of new or additional information might change the respondents' view of the project under consideration (recency).

Consensus questions: The questions were derived from Allison (1969), Cooper (1975), King (1975), Narayanan & Faye (1982), Bower (1986), Drory (1993), Pettigrew & McNulty (1995), Perrewé *et al*. (2000), and Yang (2003). This group included questions 24 to 27 on the use of various group approaches in the SID examples selected by respondents. They explore how consensus was achieved during the process and the importance of Kelly's constructs of commonality and sociality (Kelly, 1955) and managers' experience of attaining consensus in SID. How SID teams were formed (including formation of ad hoc teams, coalitions, negotiation and alliance-building) and their composition would provide more insight into the role of consensus in the process. Moreover, the impact of the socio-political process of canvassing support from top-

management might be evidenced. These questions were linked to those on managerial involvement, for example questions 13 to 16 on external consultation.

Context and types of SID questions: These questions on organisational context, industry class, job title or role, types of SIDs and years of experience were incorporated as questions 1 to 9 of the questionnaire. Knowledge and experience is critical in the positive application of heuristics, cognitive processes and response to the data presented. Accordingly, question 20 was included to identify the nature of knowledge and experience that was considered important in influencing SIDs. Arguably, the context of SIDs is under-researched in capital budgeting literature and the inclusion of these questions should provide new insights into the impact of SID context on the nature of managerial involvement in SID making. Question 31 was included to confirm that the process for the SID selected by respondents was typical in their company.

Managerial involvement questions: There was a gap in literature on managerial involvement in SIDs and this was explored in questions 11 to 17, and an opportunity given for managers to suggest improvements to their own organisation's practice in question 32. This is potentially of value in making a unique contribution and in highlighting areas for further research.

The 32 questions were of various types. This was partly to introduce variety, which would make the questionnaire more interesting for respondents to complete, and to enrich the quality of the responses. The types of questions included:

- questions with options;
- closed questions requiring Yes or No answers;
- five point Likert scale questions (with a 6th not applicable option); and
- open questions.

To include some more qualitative data, a good number of the questions were open-ended, requiring the respondent to give textual answers instead of making a choice from options provided. Even where options were given the respondents were provided with space to

include answers not available among the options. The researcher attempted to put together a balance of both open and closed questions within the questionnaire. Open questions were used where it was more appropriate for the respondents to think and write the answers (i.e. in cases of opinions, beliefs or judgement), while closed questions were used where the answers were more factual and easily scaled.

The researcher was aware that questionnaire data can be superficial if only tick box answers are collected. However, for the purposes of this research study, multi-method approach (questionnaire followed by in-depth interviews) was used to counteract this limitation and allow for triangulation of method and data. The questionnaire was used to identify the areas worthy of further investigation. There was, however, a trade-off between originality, discovery and validity of data, and the time available for the research, effort and money used in collecting data. This trade-off was kept in mind while developing the questionnaire and the interview protocol, and the answers provided were vestiges of these methods.

Mode of Delivery and Questionnaire Return

In the first instance, mail survey using electronic mailing and online facilities was used to deliver the questionnaire. The use of widespread face to face interviews guided by the questionnaire was not considered feasible at the beginning of the survey due to the scope, technical nature and complexity of the aspects of SID that were investigated. The researcher intended the use of electronic mail and online facilities to allow respondents to visually absorb each question and the context of the questions. The online facilities should enable respondents to take their time and answer the questions at their convenience, a situation similar to that noted by Mangione (1995).

Use of e-mail and the Internet to administer a questionnaire is less costly (in terms of time and money) and was expected to yield faster returns in a way similar to that experienced by Tse (1998). The response rate was also expected to be enhanced by identifying contact persons within each participating organisation, and making them responsible for the follow-

up of the questionnaires within their organisation. The researcher would only have to follow-up the contact persons and allow the knock-on effect to take its course. An option of a printable version of the questionnaire was provided by creating a Portable Document Format (PDF) version, to allow managers who preferred filling a paper version of the questionnaire to do so.

However, the original expectations proved unsuccessful, probably because the potential respondents receive a lot of *junk emails* from unknown sources that they just delete, often without opening and reading; and some organisations block emails with attachments for security reasons. The researcher had to resort to postal delivery with the option of filling the questionnaire online, if this was preferable. This mix of media of delivery improved the response rate greatly. The postal mode proved more successful (97% of the responses received) than the email / internet mode (accounting for only 3% of responses received).

Questionnaires that were returned were dated and filed; whilst the responses from the online questionnaires were received in an allocated email, thus the date of return was registered. This helped in identifying early and late responses. The responses of early and late returnees were compared in order to gauge non response bias (Herbert & Wallace, 1996). The timing of the responses was also noted to provide an indication of the effectiveness of each mailing for possible use in future survey studies.

3.2.4 Case Study Interviews, Observations and Archival Records

The survey was complemented with a fairly structured interview, which further explored the themes identified in the survey. The researcher interviewed nine managers from the six case companies. The interviews were tape recorded and a written record maintained. The research site and interviewees' body language were observed during the site visit and interviews respectively. The researcher also obtained company reports published on the Internet or otherwise and procedural manuals to provide additional contextual information. As with the questionnaire, the questions of the interview were carefully planned and accurately worded: they were tested and the meanings discussed before the final interview agenda and questions were produced. Similarly, to enable effective administration, the

interviews were also carefully planned. The interviews were conducted in a structured and multifaceted way that captured the richness and fullness of the data, whilst ensuring a high degree of focus on key issues and themes.

Interview Protocol

The Interview Protocol (**Appendix 4**), developed from methods contained in McCracken (1988) and Brenner *et al.* (1985), set out to capture contextual variability in the nature of managerial involvement in SIDs in the six case companies. It comprised brief questions about the interviewee's profile and their organisation's operating and strategic context, then a set of fairly structured primary questions followed by probing or secondary questions that were linked to each primary question. Probing questions were asked only where the interviewees had not given comprehensive responses to the primary questions and were asked until the interviewee gave as much information as was likely to cover the topic of discussion.

Development of Interview Questions from the Survey Outcomes

The factor analysis identified five factors: group processes (consensus), risk and returns in SIDs, application of knowledge and experience, influences on own judgement, and group processes (socio-political). The interview was designed to obtain further explanations of these factors of managerial involvement. The interview protocol (**Appendix 4**) was structured and divided into eight sections as shown in **Table 3.3**.

Sections A and H were included to collect further demographic, contextual and other information. Sections B to G of the protocol represent the five factors, and ensured completeness in covering the factors in each interview. Each section contains a series of general questions on the construct and potential probes. The interview protocol was designed to avoid bias and ensure sufficient evidence (Brenner, 1985: 151) to explain the five factors. "Non-directive questions and probes" (Lillis, 1999: 87) were pre-specified to minimise bias, which helped reduce the use of non-neutral probes (McCracken, 1988)

during the interviews. The interview protocol was also designed to be used flexibly (Brenner, 1985) as discussed in the next section.

Table 3.3 –Survey Outcomes vs. Interview Questions

Survey Outcome	Interview Questions
Further demographic information	Part A of the Interview Protocol – Questions 1 to 5
SID process	Part B of the Interview Protocol – Question 6
Consensus during SIDs	Part C of the Interview Protocol – Questions 7 to 13
Risk & returns during SIDs	Part D of the Interview Protocol – Questions 14
Knowledge & experience	Part E of the Interview Protocol – Questions 15 to 17
Managerial judgement during SIDs	Part F of the Interview Protocol – Questions 18 to 21
Socio-political processes during SIDs	Part G of the Interview Protocol – Questions 22 to 24
Other issues	Part H of the Interview Protocol

How the Interviews were Arranged

Interviews were arranged with the respondents who had filled the feedback forms returned with the completed questionnaires. As discussed in **Section 3.2.1**, the sample for the case studies could be considered haphazard or accidental as it was based on the willingness and availability of the managers interviewed. However, the case studies' sample was a subset of a wider purposive sample, and covered a good range of industries and types of organisation.

The researcher identified interviewees and essential background information about them applying section A of the interview protocol; and arranged the date and time of the interviews. He explained the aims of the study, the reasons for seeking the information (the researcher used the word *study* in the place of *thesis*, which he felt would not have had a positive impact on the interviewees since it holds very little appeal in the everyday world). The researcher rang the potential interviewees requesting a telephone or face-to-face interview lasting no more than sixty minutes.

Activities Prior to the Interview

Prior to the interview the researcher:

- sent a summary of the themes of the interview with a covering letter asking for relevant documents, data and resources that may be helpful to be identified, where possible, prior to interview;
- sent his contact details to the interviewee;
- sent a copy of Harris' (1999) investment appraisal model; and
- informed the interviewee that a transcript would be provided for clarification and amendment after the interview.

He sought the interviewees' consent to tape-record the interviews so as to conserve time and lessen distraction of handwritten notes. The interviewees were asked to indicate whether or not they had any objections to tape-recording the interviews. The importance of tape-recording the interviews cannot be overemphasised because taping interviews is an indispensable exercise (Patton, 2002). Tape recorders: do not "tune out" of the conversation, do not change the interpretation of what is said, do not slow down the conversation, do not miss what is said, and enable the interviewer to focus on the interview. None of the interviewees were intimidated by the tape recording of the interviews; they all permitted the interviews to be tape-recorded as shown in **Chapter 5**.

A master chart of appointments was set up and the appointments confirmed. In case there was a time conflict it was resolved by suggesting and agreeing alternate times. Three days before the interview, the researcher emailed a reminder to the interviewee together with copies of the interview agenda and the investment appraisal model diagram just in case the interviewee had deleted the copies previously sent.

The Interview

On the date of the interview, the researcher checked the tape recorder, spare batteries and tapes. He then proceeded to the interview venue. During the interview the following activities took place:

- the researcher, provided the background information of the study;

- re-confirmed permission to tape record, reiterated that the information provided would be kept confidential and that a transcript would be provided to the interviewee to cross-check and amend accordingly; and
- checked the tape recorder and conducted a voice test.

Throughout the interview notes were taken to capture any body language observed, and to aid compilation of transcripts where pronunciations were not clear on the tapes. At the end the interviewee was informed that a transcript of the interview would be sent to him. The researcher asked for the interviewee's consent to anonymously quote some of the information in the report. The researcher identified any other issues to be followed up and requested permission to do so by telephone, face to face, or by e-mail. He then thanked the interviewee for the courtesy of giving their time and promised a copy of the transcript of the interview as soon as possible. The interviewer was then shown around the company's premises before he left the research site.

After the Interview

The interview was transcribed and contextual notes written after the interview. A word processed transcript was emailed to the interviewee as an attachment to the email thanking them for granting the interview. Each interviewee was requested to read the transcript carefully and, if appropriate, to indicate that the transcript was a correct record of the interview in a reply to the email. If the interviewee found the transcript inexact in any place, he was requested to turn on the *'Track Changes'* tool of Microsoft Word, correct it and then return the corrected transcript as an attachment to the reply email.

The researcher also requested the interviewee to give him permission to use whatever part of the interview that might provide data for his study with the full knowledge that before the study was released, the interview material would again be sent to the interviewee for complete approval. This was done and all the quoted statements were approved by the interviewees. It ensured that the researcher could protect against accusations of falsification of the facts and any other legal or ethical entanglements (**Section 3.5**).

Telephone Interviews

Two of the interviews were conducted by telephone. On the day of the telephone interview, the researcher informed the other researchers, with whom he shared an office, that he would be conducting telephone interviews giving them the specific time in order to eliminate distractions. He introduced himself on telephoning the interviewee and stated briefly that he had called in accordance with previously made arrangements. He guided the interview keeping always to the agenda and the questions (see **Appendix 4**) in a similar way as in the face-to-face interviews.

Summary

Overall, the researcher ensured that; all the questions were asked and answered within their terms of reference, and that all answers were clear, free of ambiguities and as complete as he or the interviewee could make them. Where there were pointers in the answers he followed them with probing questions while seeking to maintain an easy, friendly and professional atmosphere. On the whole, every time the interviewer got an answer from the interviewee, he asked himself the following three questions:

- Has the interviewee understood the question? Has he answered the question asked? If he has not answered the question, the researcher repeated the question before proceeding.
- Is the answer clear, explicit, and unambiguous? Clarifying probes were used where the answers were not clear, or were implicit and ambiguous.
- Has the interviewee any other answers to make to the same question? The researcher used exploratory probes where there was more than one possible answer to a question.

3.3 Methods of Data Analysis

Mostly qualitative data (some of which were convertible into quantitative data) were collected in the two phases of the study, and during the search for meanings from the words and numbers in these data, various methods were employed.

3.3.1 Analysis of Survey Data

Data collected during the survey were analysed with the help of SPSS software. The responses were coded, entered and manipulated using SPSS to produce descriptive statistics representing relationships among concepts investigated (e.g. application of knowledge and experience, and the typology of SID). The resulting statistics were then interpreted to produce factors that formed the basis of the case studies for as noted by Dey (1993:28): "… number depends on meaning".

Each blank questionnaire was uniquely coded to indicate the company, the manager's functional position and a serial number. This was done so that the respondent could be easily traced where applicable. In addition, to allow SPSS to be used to manipulate the data, appropriate codes were attached to the questions and sub-questions in the questionnaire. The codes were exhaustive, mutually exclusive, and derived from the same classification principle. Alphanumeric codes were used for items such as company name and sector name. Numeric codes used for Likert scale questions and sub-questions, and other questions were categorised appropriately.

SPSS was used to compute descriptive statistics, with univariate frequency distribution. This enabled the researcher to summarise and organise the data in a meaningful way that led to identification of patterns in the data, as has been reported in **Chapter 4**. Questions with Likert scales were then subjected to *Factor (Principal Component) Analysis*, and key factors identified. These factors were investigated further during the case studies. As part of the factor analysis of the data, descriptive measures and reliability statistics were calculated.

Initially the researcher extracted from DataStream and analysed performance data, in the form of return on capital employed (ROCE), for the companies in each of the sectors surveyed. He computed an average ROCE for each sector and company surveyed respectively. Based on the comparison between the sector ROCE and the company ROCE

the companies were classified as under-performing and over-performing. However, a cross-tabulation between performance and the variables investigated did not yield any meaningful results and this line of enquiry was abandoned.

SPSS was used to compute item-total correlation and squared multiple correlation (R^2) coefficients for the five factors. In addition, a one-way unrelated analysis of variance (ANOVA) was conducted for the five factors to supplement the results of the reliability and consistency analysis. Comparison and contrasts were made between the sets of factors, and how the variables within each set correlate with each other was examined to ensure that the variables were factors of related features of SIDs. Spearman's correlation coefficients were computed to measure the relationships among the factors since the data was not continuous.

The researcher then conducted cross-tabulation analyses between the variables in each variable set and typology to examine the relationships between them. In a similar way, the relationship between the variable sets and experience of managers were examined. Cross-tabulations and χ^2 tests were conducted to indicate whether there were any statistically significant relationships. Gamma coefficients were also computed to measure the strength and direction of the relationships that were identified. These inferential statistics, particularly the non-parametric chi-square test, were used to establish the statistical significance of the observed association between the factors of managerial involvement in SID making. Analysis of the survey data using these analytical tools is presented in **Chapter 4**.

3.3.2 Case Study Analysis

The qualitative data collected was analysed using template analysis. The data were categorised to allow meaningful analysis and avoid the findings becoming an impressionist view of what they actually mean. The analysis followed the conceptual framework that was developed during data collection. An analytical framework (**Figure 5.1**) was devised and the six cases in this study were compared against it as Erlandson et al. (1993) and

Glaser & Strauss (1967) suggest. The case study data analysis process was concurrent with the data collection process (**Section 3.2.4**). Enough time was allowed between interviews to allow for data transcription and preliminary analysis before the next interview.

Preparing data for analysis

The evidence collected from the case study, i.e. tapes from the interviews, were transcribed to provide a permanent record of the research; and trends in the interviewees' responses established from initial observation. Other evidence were categorised and tabulated to aid interpretation, and used to establish the nature of managerial involvement in SID making. Furthermore, contextual information for each case was recorded to help recall the context and observations made during the interviews. It also helped inform the interpretation of the data collected as it facilitated memory of the precise situation to which the data related.

The essence of preparing the data for analysis was to ease identification of substantive statements.

- Case transcripts were coded for themes in the template (**Appendix 5**). The researcher went through the content of the transcript looking for themes or categories noted. This was eased by the fact that the template was well matched to the interview protocol.
- Data not matching the themes in the template were given new codes. New categories were added for statements that did not fall into any of the template categories.
- After going through all the transcripts, the researcher went back to the first and went through it again. This was done to ensure that any substantive statement that may have been missed was coded.

Stages in the process of data analysis

There are various qualitative research traditions, approaches and strategies of data analysis (Coffey & Atkinson, 1996; Dey, 1993; Miles & Huberman, 1994; Tesch, 1990). Tesch (1990) identifies four main categories of data analysis strategies.

1. Understanding the characteristics of language – analytic strategy requiring greater structure and set procedures (Saunders et al., 2007); begins deductively; data categories and codes are derived from models and predetermined analytical framework.
2. Discovering irregularities – analytic strategy requiring greater structure and set procedures (Saunders et al., 2007); begins deductively; data categories codes are derived from models and predetermined analytical framework.
3. Comprehending the meaning of text or action – begins inductively; requires less structure; no predetermined or a priori categories and codes to direct analysis.
4. Reflection – begins inductively; requires less structure; no predetermined or a priori categories and codes to direct analysis.

This study was highly structured with the survey instrument based on themes that emerged from the literature related to SIDs. The interviews were then based on constructs of managerial involvement in SIDs identified from the survey. These constructs required further explanations of why and how they apply in different organisational contexts. Explanations were then explored for how the constructs enhance or inhibit SIDs. Qualitative data was used to provide these explanations and an interpretivist approach adopted. However as noted by Coffey & Atkinson (1996) and Tesch (1990) a more interpretivist approach should not be seen as implying less analytic rigour.

Using the interpretivist approach, data collected during the interview phase of the study was transformed to allow:

- comprehension and management;
- integration of data drawn from different transcripts and notes;
- identification of key themes or patterns from them for further exploration;
- development of propositions based on these apparent patterns or relationships; and
- drawing and verification of conclusions.

Categorisation: Simple categorisation was undertaken to sort data into categories and locate subsets according to the template (**Appendix 5**) and framework for analysis (**Figure 5.1**). The **categories** were in effect **codes** or **labels** used to group the data. Identification of the categories used was guided by the research objective and questions; however as recognized by Dey (1993), another researcher with different objectives might derive

different categories from the same data (i.e. researchers interpret data differently). The categories were derived from terms existing in theory and literature that relate to the survey factors. The framework for analysis ensured that the categories had two aspects, "an internal aspect – they ... [are] ... meaningful in relation to the data – and an external aspect – they ... [are] ... meaningful in relation to other categories" (Dey, 1993: 96-97). Labels under SID process and managerial judgement were used to indicate analytical linkages and interpretation (King, 2004; Strauss & Corbin, 1998) of the data from the cases.

Unitisation: Units, i.e. relevant "'bits' or 'chunks'" (Saunders et al., 2007: 480), of the data collected were then attached to the appropriate categories of the analytical framework. This was done by labelling each unit of data with appropriate category(ies) in the margin of the transcript and notes (**Appendix 6**). Indexes (Easterby-Smith et al., 2002) were used to link the data units to the transcripts and notes. The data was then reduced into and displayed by a range of tables (matrices – Miles & Huberman, 1994), charts, and figures (**Chapters 5** & **6**). Emerging patterns were therefore easy to recognise from the condensed data.

Recognition of Relationships: The reduced data was then searched for key themes and relationships. Where new insights were achieved (or the categories turned out to be too broad) and it became necessary, the categories were integrated (or subdivided) to refine and focus the analysis. Relationships between categories were identified to create pictures and understanding of what the data was telling the researcher.

Developing Propositions: Constructs emerged inductively from the data and alternative explanations or examples that did not conform to the recognised pattern or relationship were sought. Explanations were sought for negative cases that occurred in the data. This activity was very useful in formulating conclusions (**Chapter 8**) that were drawn from the case study data. Intervening variables were searched to offer explanation of associations that were apparent in the data. Factors enhancing and those inhibiting SIDs were identified.

Summary

In summary to analyse the case study data, a template was developed to chart out categories that emerged from the results of the survey. Data from the transcripts were organised in a sequence of the template; and extracts of data from each case highlighted. Where a category was found not to represent the data adequately it was modified (final template included as **Appendix 5**). In addition contextual factors were compared to those from the literature to show the relationships between relevant participants within the organisation. Organisational culture (rule bound/hierarchical etc) and the psychological factors were divided into those that 'enhance' and those that 'inhibit' managerial judgement and involvement in the SID process in a two-stage process.

The first stage was within the case analysis for each of the six cases to provide a rich understanding of the case and allow distinctive patterns within each case to materialise. This stage involved: the use of data reduction and presentation techniques; creation of different matrices to distinguish between various themes; identification of units of data in the transcript that relate to the different themes; examination of the units of data to establish the factors that enhance or inhibit managerial judgement and involvement in SIDs; and grouping of similar factors together (**Chapter 5**). Data were displayed using Miles and Huberman (1994) data matrices representing the three boxes in the 'framework for analysis' (**Figure 5.1**).

The second stage was an analysis across the six cases to identify common patterns and unique features. It involved: selection of a number of categories of managerial involvement, which were then explored across the cases to identify similarities and differences between them; development of a general explanation that applies to all the cases; and development of a model of explanatory factors that enhance or inhibit managerial involvement in SIDs (**Chapter 6**).

3.4 Other Issues

The study to investigate 'the nature of managerial involvement in SID making' cuts across several disciplines, e.g. accounting, finance, corporate strategy, psychology, economics,

organisational behaviour and marketing. The researcher was aware that there may be several ethical, political and legal issues that would arise as a result of the research.

3.4.1 Ethical Issues

Since the research involved participation of human beings either through survey or case study interviews, there were key *ethical protections* that the researcher considered and incorporated in the research (pre and post study) to assure the participants during the study. The principle of *voluntary participation* (Trochim, 2001) was employed; i.e. the participants were not forced into participating, rather, they were fully informed about the procedures and any risk involved. They were requested to give their 'informed consent' to participate before they filled the questionnaire or the interviews progressed. This study did not present any potential physical or psychological risk, and the issue of risk of harm was not applicable. However, the researcher undertook not to put participants at any risk of harm in case it was envisaged at any point during the research.

The participants' *confidentiality* and *anonymity* was guaranteed: no identifying information was availed to anyone who was not directly involved in the project and the participants remained anonymous throughout the study. This guarantee was included in the questionnaire that was sent to potential respondents, and participants were informed of this guarantee before any interview.

Even though no set of ethical standards could possibly anticipate every ethical issue that might have arisen during the study, the researcher considered all relevant ethical issues during the planning stage and completed and submitted the University's ethical forms to the Higher Degree Committee (HDC). The researcher was prepared to consult the supervisors at any time during the research in case any ethical circumstance that had not been anticipated before arose. This was to ensure that any additional actions required, to ensure the safety and rights of the research participants, was taken into account and no important ethical issue overlooked.

3.4.2 Political Issues

The researcher was aware that knowledge suggests "certainty, authoritativeness, even usefulness" (Martin, 1998: 124), thus it is important to be knowledgeable. However, knowledge itself is limited, specific, parochial, but not everlasting, nor necessarily of general value: it may not change over time. The process of searching for new knowledge is therefore affected by politics. Political issues may introduce bias, in various ways, to the knowledge that the research may eventually come up with. "Political disturbances give rise to theoretical questions…" (Martin, 1994:5).

There were various interest groups, e.g. the supervisors, the HDC, participating organisations and managers, examiners, and potential publishers; whose interests were carefully placed within the context of the research to obtain quality and reliable evidence, results and thesis. The practical relevance of the research to the goals of the organisations and the expectations of the other interest groups might have influenced the shaping of the knowledge created from this study. The University in particular is a focal point for pressures from various powerful groups. Therefore the research had to satisfy the needs of the various interest groups in order to gain acceptance and support. The research was oriented to the priorities of the wider accountancy and management professions. The researcher was also aware that members of each discipline jealously guard their own little patch of knowledge (*ibid.*), and that the researcher's own interest might influence the research orientation. Every necessary step was thus taken to maintain objectivity throughout the research study.

3.4.3 Legal Issues

The researcher undertook to safeguard the data collected from participating organisations and managers. Actions were taken to ensure that the requirements of the Data Protection Act (DPA) 1998 were met. These requirements include:

- fair and lawful acquisition and processing of personal data;
- holding data for lawful purposes only;

- use of data only for the purpose of the research and disclosure only to the people directly involved in the research;
- the holding of adequate relevant (not excessive) data in relation to the research;
- ensuring that any personal data collected during the research were accurate;
- the holding of data only as long as necessary;
- allowing access to the individual of the data held about them, allowing them to correct or erase the data as necessary; and
- taking appropriate measures to ensure security of the data collected.

To ensure that these requirements were met, the researcher completed a checklist, for compliance with the provisions of the DPA 1998, prepared by the University, submitted the completed checklist to the Supervisors, and continuously referred to it during the study.

3.4.4 Summary

The research methodology used for this study depended on the study's aim and research questions. The methodology was based on a pragmatist philosophy, and employed a mainly deductive research approach, supplemented by some elements of the inductive approach. It included a combination of survey and case study research strategies and associated data collection and analysis methods. The mix of strategies and triangulation of data and methods fully addressed the research aim and questions and lend credence to the results and the final research report. The methodology also incorporated the ethical, legal and political implications, all of which ensured a high quality report which is credible, valid and reliable: thus acceptable since all relevant issues have been incorporated.

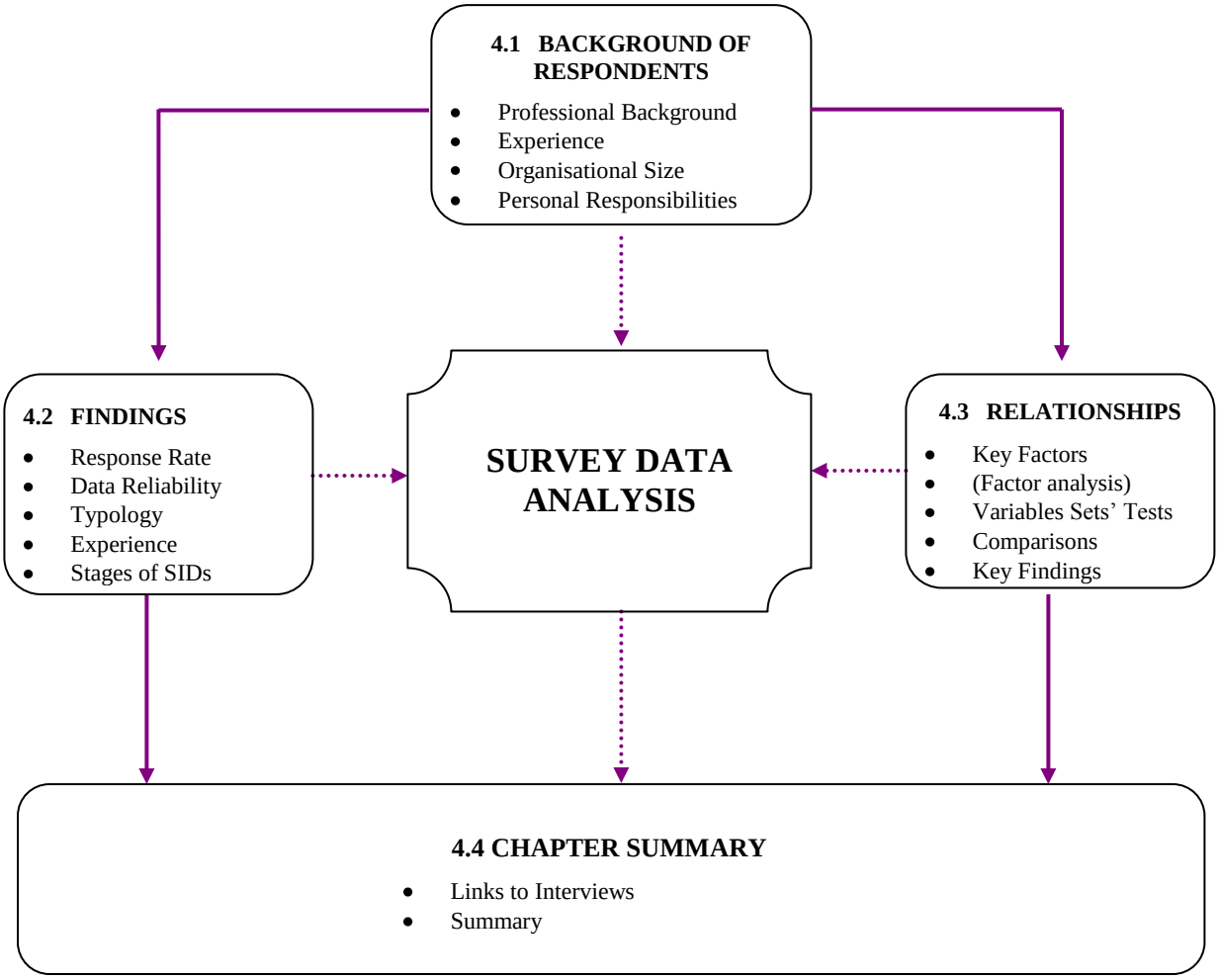
Chapter Four

Analysis of Data from the Survey

Chapter 4

Analysis of Data from the Survey

General Overview



This Chapter presents an analysis of the data that were obtained from the survey. In the first section, the backgrounds of the respondents are presented, and then the responses are summarised. The next section deals with the relationships that have been identified (making comparisons; and predictions from the data presented). Finally, key findings from

the survey are summarised while making relevant links to the literature, and explaining how the survey results informed the interviews.

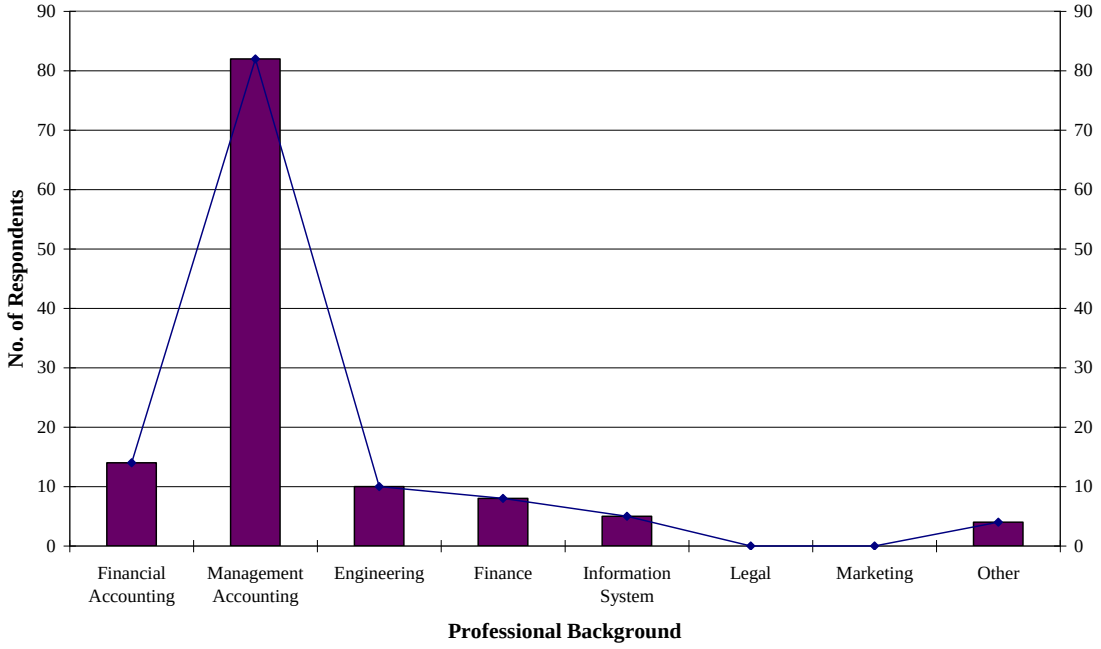
4.1 Backgrounds of Respondents

This section provides the contextual information about the respondents who participated in the survey as well as their organisations. It discusses the professional background, experience, and the position of responsibility held by the respondents, and the sizes of the participating organisations.

4.1.1 Professional Background

As indicated in **Chapter 3**, the sample for the survey consisted of 105 managers from 70 companies. The sample comprised mainly managers with a management accounting training, though most of the managers had other professional and technical backgrounds and experience (see **Chart 4.1**).

Chart 4.1 Professional Backgrounds of Respondents



Nine of the managers surveyed had two professional qualifications, while three had three professional qualifications and one had four qualifications. 11.4% of the managers had Engineering, Information System, Business Technology and Master of Business Administration qualifications whereas the remaining 88.6% had Financial Accounting, Management Accounting, and Finance qualifications; however five managers included in this group had both financial and non-financial qualifications. They attained the non-financial qualification first before the financial qualifications. Of the 105 respondents, 82 respondents (78%) were management accountants by training. 13% of the respondents were financial accountants, 10% engineers by training, 8% were finance specialists and 5% information technologists. The managers had varied experiences in their respective positions and some had worked in similar positions in other organisations and these are discussed in the next section.

4.1.2 Experience of the Respondents

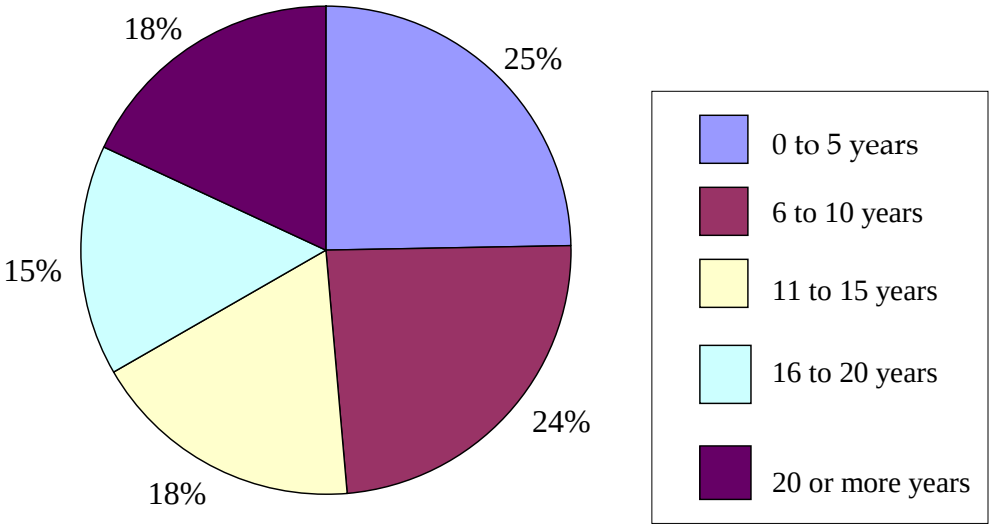
As **Table 4.1** and **Chart 4.2** show, of all the 105 respondents, 79 (75%) had worked for their respective companies for at least six years, with 19 (18%) having at least 20 years of service. Only 26 (25%) respondents had worked with the organisation for five years or less. As for serving as managers, 83 of the respondents (79%) had been serving in managerial positions for five years or less, only 2% had been serving in managerial position for more than 15 years. However, 41 of the 105 respondents worked in managerial positions in other

Table 4.1 How long the respondents have worked for the company

	Frequency	Percent
0 to 5 years	26	25
6 to 10 years	25	24
11 to 15 years	19	18
16 to 20 years	16	15
20 or over years	19	18
Total	***105***	***100.0***

similar organisations before joining their current companies. Of the 41, 53.7% worked in such organisations for five years or less, 43.8% for 16 to 19 years and 2.4% for at least 20 years. Therefore one can conclude that a good number of the respondents were, relatively, highly experienced managers. In the next section, the sizes of the organisations in which they served at the time of the survey are discussed.

Chart 4.2 How long the respondents had worked for company



4.1.3 Organisational Size of Respondents' Companies

A sample of managers from 70 companies participated in the survey. Of the 70 companies whose managers were surveyed, 65 were FTSE companies listed on the London Stock Exchange with financial data available on the DataStream database. One company is listed on the Berlin Stock Exchange. In addition, managers from four companies that satisfy the Companies Act criteria for MSEs also participated in the survey. Accordingly, managers from 66 large companies and four medium companies participated in the survey, and the respondents occupied various positions of responsibility within these companies.

4.1.4 Personal Responsibilities of Respondents

Table 4.2 shows the position of responsibility held by the 105 respondents. 22% (23) of the participants were Finance Directors, 11% (12) were Financial Controllers and 9.5% (10) each were Chief Executive Officers, Managers and Accountants respectively. The remaining 57.5% of the respondents held positions of responsibilities ranging from Chairman, Vice President, Director of Corporate Finance, Chief Finance Officers, Treasurer, Controllers, Finance Managers, General Managers, and other managers. The respondents were divided into two categories based on seniority of the managers.

Table 4.2 Position of Personal Responsibility

Job Titles	Frequency	% of Respondents
Finance Director	23	22
Financial Controller	12	11
Accountant	10	10
Chief Executive Officer	10	10
Manager	9	9
Finance Manager	7	7
Vice President	7	7
Director	5	5
Process Lead	3	3
Chief Finance Officer	2	2
Controller	2	2
Information Technology Manager	2	2
Other Titles *	13	12
Total	**105**	

* Include: Architect, Chairman, Commercial Asset Analyst, Director Corporate Finance, Finance Analyst, Gas Turbine Service Manager (GTSM), General Manager, Head of Programme Implementation (HPI), Learning Development Advisor, Operations Manager, Project Engineer, Project Team Leader and Treasurer; each with a frequency of 1.

These categories are contained in **Table 4.3**, which shows that 48% of the respondents were senior managers, i.e. Chairman, Chief Executive Officers, Chief Finance Officers, Directors, Treasurer and Vice Presidents. The remaining 52% were medium level managers, *viz.* Project Accountants, Architect, Controllers, Analysts, Finance Managers,

General Managers and Various other managers. Hence, a wide range of job titles was achieved.

Table 4.3 Seniority of Respondents

Middle Level Managers			Senior Level Managers		
Job Description	***No.***	***%***	***Job Description***	***No.***	***%***
Financial Controller	12	11	Finance Director	23	22
Accountant	10	10	Chief Executive Officer	10	10
Manager	9	9	Vice President	7	7
Finance Manager	7	7	Director	5	5
Process Lead	3	3	Chief Finance Officer	2	2
Controller	2	2	Other Titles †	3	3
IT Manager	2	2			
Other Titles Ψ	10	10			
	55	**52**		**50**	**48**

Ψ Include: Architect, Commercial Asset Analyst, Finance Analyst, Gas Turbine Service Manager (GTSM), General Manager, Head of Programme Implementation (HPI), Learning Development Advisor, Operations Manager, Project Engineer, and Project Team Leader (frequency of 1 each).

† Include: Chairman, Director Corporate Finance and Treasurer; each with a frequency of 1.

In addition to inclusion of managers of varied seniority in the study, the responses revealed that multiple managers were involved in the process through consultations, both within the organisation and external. The issue of multiple involvements will be explored further to provide contextual information on the study in a later section. The subsequent section delves into the features of the responses, and it aims to provide the context for understanding and interpreting the statistical analysis that is contained in the rest of the chapter.

4.2 The Findings

This section presents and discusses the main survey data. It provides the nature and characteristics of the responses that form the basis of this study. It discusses the response rate and the reliability of data collected, and presents descriptive statistics to enable the reader to gain an overview of the nature of the data that has been analysed in this chapter.

4.2.1 Response Rate

All the responses received were dated, numbered and filed according to the company's code that had been attached to each company in the sample. This eased the identification of the cases of non-response to follow up. 417 FTSE companies and 4 MSEs were targeted and **Table 4.4** shows an analysis of the usable responses from respondents from the FTSE companies by sector.

Table 4.4 Summary of Respondents from FTSE Companies

	Sector	Companies in Sector	Companies Targeted	Companies in Sample	Individual Responses
A	Aerospace & Defence	13	7	2	5
B	Automobile & Parts	19	9	2	3
C	Beverages	9	6	3	6
D	Chemicals	20	8	1	1
E	Construction & Building Materials	74	44	11	12
F	Diversified Industries	5	3	0	0
G	Electricity	7	3	0	0
H	Electronic & Electric	43	18	5	5
I	Food and Drug Retailers	12	7	1	1
J	Food Producers & Processors	29	8	2	2
K	Forestry and Paper	4	1	0	0
L	Healthcare	37	12	2	2
M	Household Goods & Textiles	50	18	0	0
N	IT Hardware	30	14	1	1
O	Leisure & Hotels	84	26	2	2
P	Media & Entertainment	115	29	2	2
Q	Mining	29	6	1	1
R	Oil and Gas	31	7	2	3
S	Other Utilities	13	6	4	7
T	Personal Care & House	7	6	1	2
U	Pharmaceuticals & Biotech	44	10	2	4
V	Real estate	78	11	2	2
W	Retailers General	72	26	3	3
X	Software & Services	139	48	2	2
Y	Steel & Other Metals	3	1	1	4
Z	Support Services	160	54	7	11
AA	Telecom Services	20	10	4	5
AB	Tobacco	3	1	0	0
AC	Transport	40	18	3	8
	Total	**1,190**	**417**	**66**	**94**

The responses were categorised upon receipt into:

- return to sender (where the respondents were no longer with the companies) 172
- respondents not willing to participate in the study 11
- respondents not qualified to participate in the study 7
- usable responses 94

In addition, the researcher obtained 11 responses from the managers who were surveyed in the MSEs. The 105 usable responses were therefore from individual respondents in 70 companies. The company response rate was 17% (i.e. 70 out of the 421 companies responded). This response rate is probably an indication of the research fatigue among managers in the UK. In addition, currently in the UK, there appear to be many marketing (junk) mails circulating and a number of managers might have just thrown the research instruments into the bins on receipt. Nonetheless, the response rate is reasonable for a postal survey. The next issue was to determine how reliable the data collected was to justify whether the statistics obtained from the data could be relied on.

4.2.2 Data Reliability

The author calculated Cronbach's alpha/coefficient (Cronbach, 1951) for the 18 key variables that emerged from a preliminary Factor Analysis of the questionnaire questions with Likert scales, to give an indication of the reliability or internal consistency of the data. The Cronbach's alpha is a numerical coefficient of reliability that shows how well a set of variables measures a single uni-dimensional latent construct. The coefficient is a function of the number of test variables and the average inter-correlation among the variables, and standardized Cronbach's alpha is calculated as:

$$\alpha = \frac{N - \check{r}}{1 + (N - 1) - \check{r}}$$

Where: α is Cronbach's coefficient
N is number of variables
$\check{r}$ is inter-variable correlation among variables

Cronbach's alpha value of 0.70 or higher is usually considered *acceptable* in most Social Science research situations as a value lower than 0.7 might mean the data is multi-dimensional (Nunnally, 1993). The coefficient is usually low for data with multi-dimensional structure: for such data, Cronbach's alpha will normally be low for all variables. High or good reliability would mean the variables measure a single uni-dimensional latent construct well. The researcher calculated Cronbach's coefficient for the 18 variables and obtain a standardized Cronbach's alpha value of 0.802 (**Table 4.5**), which is very satisfactory.

Table 4.5 Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
0.799	0.802	18

The data is apparently uni-dimensional and the variables under each factor seemingly measure the same lateral construct. The researcher was aware of criticisms leveled against the use of Cronbach's coefficient, e.g. Streiner & Norman's (2003) advice that if the alpha value is too high, then it may suggest a high level of variable redundancy, i.e. that a number of variables asked the same question in somewhat different ways. Nevertheless, Nunnally (*ibid*.) maintains that the alpha value should be above 0.7, but not higher than 0.9 to show high reliability or consistency of data. To ensure that the high value obtained means good reliability, separate coefficients to estimate the reliability of each of the five groups of factors identified were calculated. The coefficients values were 0.7 for two of the categories (*group process – consensus* and *application of knowledge &experience*), 0.6 for *risk & returns in SIDs* and *socio-political*, and 0.5 for *influences on own judgement* (**Table 4.6**).

The alpha coefficient ranges from 0 to 1, and although researchers, e.g. Nunnally (1993) recommend a value of 0.7 as an acceptable coefficient, other literature use lower thresholds. For example McKinley *et al.* (1997) devised a questionnaire to measure patient satisfaction

and calculated Cronbach's alpha for eight separate factors they had extracted. The values of the coefficient for each of the eight factors they examined ranged from 0.61 to 0.88, and they concluded that the questionnaire had satisfactory internal validity, since five of the eight factors had alpha values greater than 0.7. Likewise, Bosma *et al.* (1997) reported similar values, from 0.67 to 0.84, for assessments of three attributes of the work environment.

Table 4.6 Reliability Statistics for the Five Factors

Factor	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
Group Processes – Consensus	0.7	0.7	6
Risk & Return in SIDs	0.6	0.6	4
Application of Knowledge and Experience	0.7	0.7	3
Influences on Own Judgement	0.5	0.5	3
Group Processes – Socio-political	0.6	0.6	2

Table 4.7 ANOVA [a]

		Sum of Squares	df	Mean Square	F	Sig.
Between Managers		639.618	92	6.952		
Within Managers	Between Items	510.714	17	30.042	21.508	0.000
	Residual	2184.619	1564	1.397		
	Total	**2695.333**	**1581**	**1.705**		
Total		***3334.951***	***1673***	***1.993***		

Grand Mean = 3.18

[a] The covariance matrix is calculated and used in the analysis.

The researcher also computed item-total correlation and squared multiple correlation (R^2) coefficients and a one-way unrelated analysis of variance (ANOVA) for the five factors to supplement the results of the reliability and consistency analysis. The ANOVA test and correlation coefficients confirmed the reliability of the data (see **Tables 4.7** & **4.8**). The *F*-

ratio was found to be statistically significant at 0.0001, far less than 0.05, which indicates that there is a significant difference between the factors.

The values of R^2 for the 18 items were all 0.3 and above, which adds to internal consistency. With the reliability and internal consistency already determined, the next section will present some descriptive statistics.

Table 4.8 Item Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Brainstorming	54.08	114.005	0.351	0.337	0.791
Industry's rule of thumb	54.52	112.644	0.391	0.275	0.789
Comparing & contrasting new with previous	53.68	111.525	0.393	0.539	0.789
Managerial experience	53.42	115.268	0.358	0.349	0.791
Knowledge of competitors	54.22	112.953	0.354	0.393	0.791
Knowledge of strategy formulation	53.39	115.805	0.457	0.428	0.788
Personal agendas	54.81	115.766	0.246	0.332	0.799
Financial projections	53.06	116.626	0.290	0.426	0.795
Informal discussions & interactions	53.78	113.801	0.411	0.329	0.788
Views of companies top management	53.70	116.908	0.240	0.271	0.798
Temporary alliances or subgroups formed	54.59	110.788	0.385	0.314	0.790
Managers who are socially compatible	54.88	111.649	0.411	0.415	0.788
Managers with very different skills	53.92	109.614	0.531	0.472	0.780
Managers who respect superiors' opinions	54.66	113.902	0.317	0.259	0.794
Managers trained in negotiating skills	54.47	110.165	0.463	0.349	0.784
Evaluation of expected outcomes (probability)	53.66	108.511	0.475	0.411	0.783
Comparison with risk profile of past projects	54.43	107.487	0.476	0.585	0.783
Individual manager to champion and be responsible	53.22	115.562	0.318	0.314	0.793

4.2.3 Types of SIDs

This subsection examines the types of SIDs that the respondents focused on when completing the questionnaires and therefore formed the basis of their responses. The researcher identified six types of SID, which were then divided into two groups: *product-related* and *non-product*, based on whether the type of SID is directly related to production or marketing of the company's product(s).

Table 4.9 Typology of SIDs on which responses were based

	Frequency	%
New Product Development	15	14.3
New Market Development	11	10.4
New Site or Site Development	21	20.0
New Technology or Infrastructure	23	21.9
Acquisitions of Business Assets or Companies	25	23.8
Other*	10	9.5
Total	***105***	***100.0***

* Includes compliance, decommissioning, downsizing and business process design

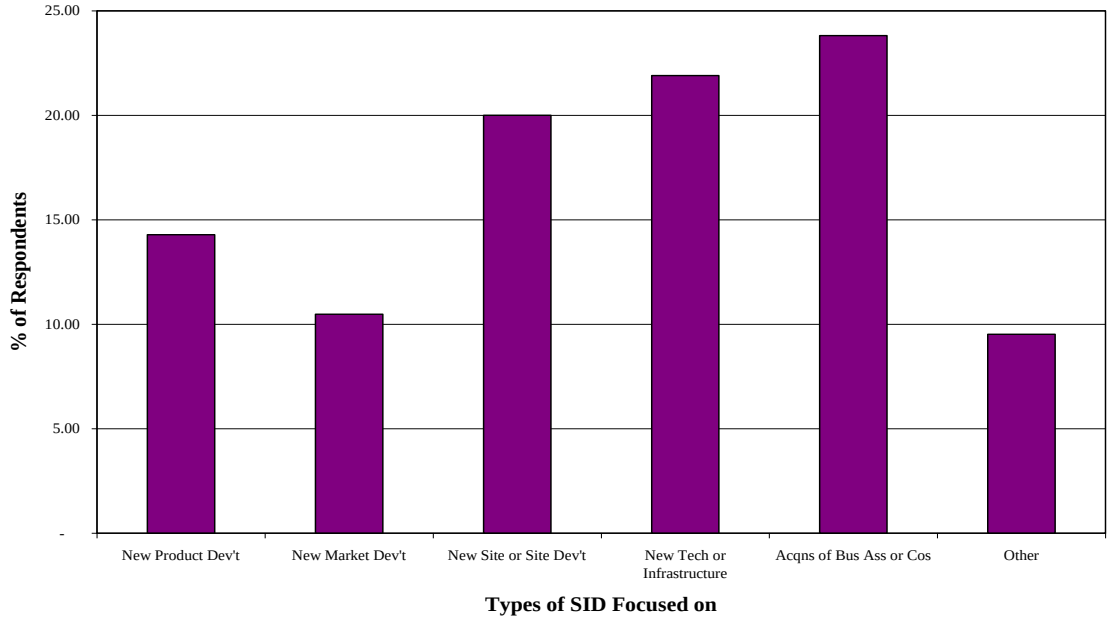
Table 4.9 and **Chart 4.3** show the six types of SIDs that respondent managers focused on when completing the survey questions. Acquisitions of business assets, new technology or infrastructure and new site or site development, each formed the basis of 20% or more of the managers responses (24%, 22%, and 20% respectively). The remaining three, i.e. new product development, new market, and others (compliance, decommissioning, downsizing, and business process design) each formed the basis of less than 15% of the responses (14%, 10% and 10% respectively).

Product-related SIDs included those SIDs that are directly related to increasing or improving production and marketing of the products made in organisations i.e. the following types of SIDs:

- new product development;

- new market development (new customers / clients line);
- new site or site development (operating facilities e.g. new location, relocation, expansion); and
- new technology or infrastructure e.g. computer system development or replacement.

Chart 4.3 Typology of SIDs focused on



Non-product SIDs, in contrast, comprised all those SIDs that are not directly related to increasing or improving production or marketing of products in business organisations and included:

- acquisitions of business assets or companies;
- compliance (new legislation e.g. health & safety); and
- others including decommissioning, downsizing, business process design.

Table 4.10 Typology of SIDs focused on

	Frequency	**%**
Product-related	70	67
Non-product	35	33
Total	***105***	***100***

Product-related SIDs formed the basis of 67% of the responses, while *non-product* SIDs accounted for the remaining 33% (**Table 4.9**).

4.2.4 Experience of Managers

As was discussed in **Section 4.1.2**, all the managers who participated in the survey were quite experienced. Based on the number of years the respondent managers had spent in their respective companies the respondents were divided into two categories. The *less-experienced* managers included those with **10 years or less** with the company, while the second category comprising those managers with **more than 10 years** of service with the company was labelled *more-experienced.*

Table 4.11 Experience of respondents

	Frequency	%
Less-experienced *(10 years or less)*	51	48.6
More-experienced *(more than 10 years)*	54	51.4
Total	***105***	***100.0***

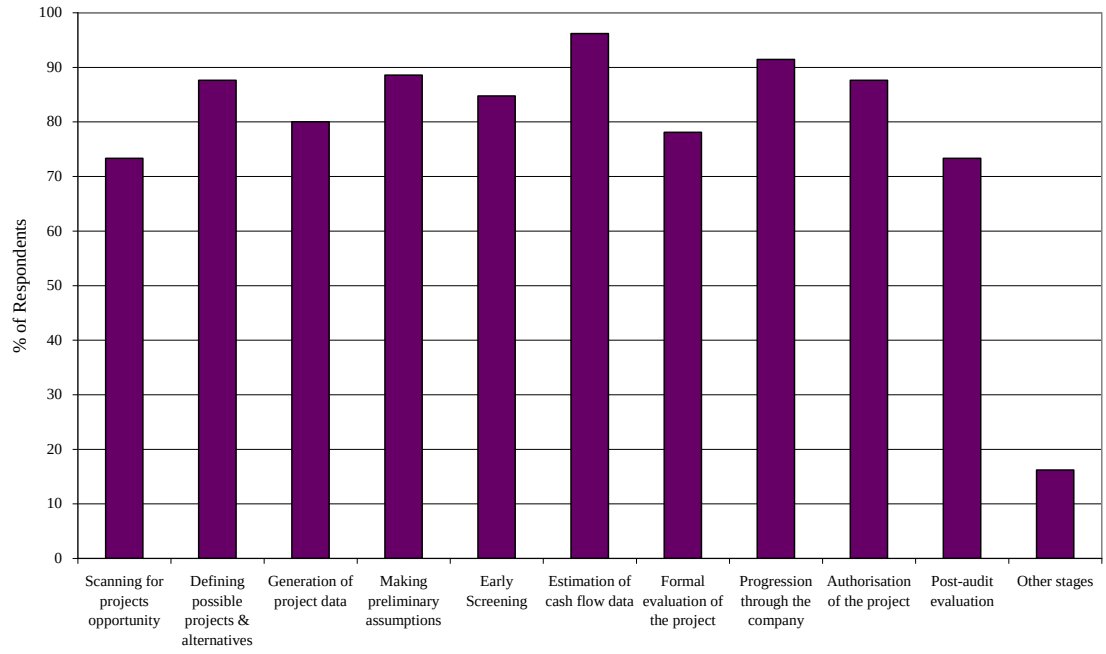
In **Section 4.1.2**, we saw that one-quarter of the respondents had worked for their respective company for less than five years, while 18% had worked for their respective company for more than 20 years (**Table 4.1**). The remaining 67% had worked for their companies for between five and 20 years. When the respondents were divided into the two categories (i.e. less-experienced and more-experienced) the respondents were more or less equally distributed, with 49% falling into the less-experienced group and 51% the more-experienced group (**Table 4.11**).

4.2.5 Stages of the SID Process

The SID process would inevitably take place through some identifiable stages. In this section the researcher examines the distribution of the responses across 10 stages. As **Chart 4.4** shows, each of the 10 stages applies to more than 73% of the respondent companies. Estimation of cash flow data applies to 96% of the companies; followed by

progression through the company (91%); then making preliminary assumptions, defining possible projects & alternatives, and authorisation of the projects (89%, 88% and 88% respectively).

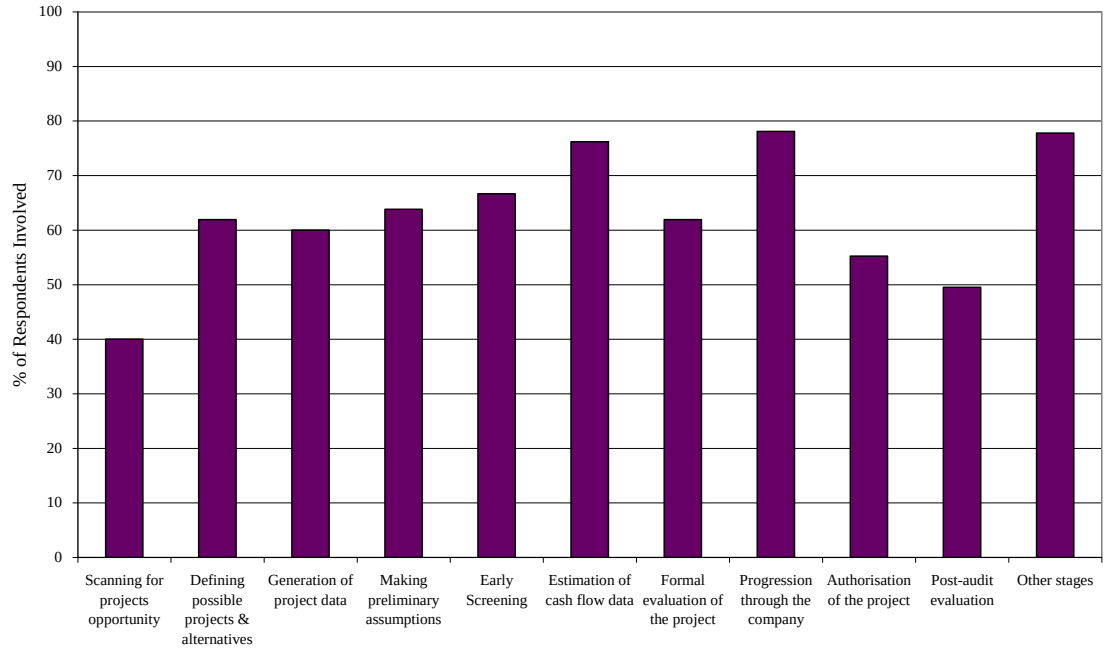
Chart 4.4 Application of SID stages to the respondent companies



These are followed by generation of project data (80%), formal evaluation of the project (78%), scanning for project opportunities (73%) and post audit evaluation (73%). In addition, there were two additional stages (others) that were identified by the respondents and applied to 16% of the respondent companies: these were implementation and change management phases.

Involvement of the respondent managers in the 10 stages was also examined and as **Chart 4.5** indicates, the proportion of respondents involved in eight of the 10 stages (*viz.*: defining possible projects and alternatives, generation of projects data, making preliminary assumptions, early screening, estimation of cash flow data, formal evaluation of the project, progression through the company, and authorisation of the project), outweighed the proportion not involved.

Chart 4.5 Involvement of the respondents in the SID stages



The respondents were involved in most of the stages: up to 78% were involved in progression of the project through the company, while 76% were involved in estimation of cash flow data (this appears to be in line with the proportion, 88.6%, of respondents who are financial managers). 64% of the respondents were involved in making preliminary assumptions, 62% each involved in defining possible projects or alternatives and formal evaluation of the project, and 60% in generation of project data. In other words for each of these six stages, 60% or more of the respondents were involved.

Nonetheless, for the remaining four stages, 40% or more of the respondents were involved – scanning for project opportunities (40%), post audit evaluation (50%), and authorisation of the project (55%). Finally, the other stages (implementation and change management) apply to 16% of the respondent companies, with 78% of respondent managers from these companies involved. These proportions seem to confirm that scanning for strategic projects and authorisation of strategic projects is confined to a few people. The results provide

evidence that a good proportion of both more-experienced and less-experienced managers were involved in most of the 10 stages of SID.

4.3 Relationships Identified

In this section, the researcher examines the relationships that exist among the variables surveyed. The data was reduced to extract key factors and the relationships between and within these factors were examined. The strength and direction of the relationships that have emerged was also established. This section also looks at the intervening variables that were evident in the data. Finally, relevant inferential statistics were computed and interpreted to allow comparisons and predictions.

4.3.1 Key Factors

The analytic survey instrument (**Appendix 2**) had four major sections. The first section enquired about *personal data and background information* including the *types of strategic investment decisions (SIDs)* that the managers were involved in and formed the context of the survey. The second section consisted of questions on *involvement in SIDs and the SID process*, while the third section was on *influences on SIDs (heuristics, framing and consensus)*. The concluding section allowed the respondents to give their views on how SIDs in their organisation could be improved.

To determine the factors that should be the focus of this analysis, the researcher conducted a Factor (Principal Component) Analysis to explore patterns within the data set. A preliminary analysis included all the sub-questions of the 10 questions (questions 18, 19, 20, 22, 23, 25, 26, 27, 28, and 29) with Likert scales in the analysis. The KMO and Bartlett's test of sphericity produced an overall Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy of only 0.416, which is lower than the 0.5 that is recommended as the least value that would indicate that Factor Analysis might be appropriate. Consequently, some of the variables were eliminated. The elimination of variables was based on

individual KMO measures for each of the variables. Those with KMO greater than 0.5 were then included in the second Principal Component Analysis. The following 18 variables were included in this analysis.

V1	Brainstorming
V2	Industry's rule of thumb
V3	Comparing & contrasting new with previous
V4	Managerial experience
V5	Knowledge of competitors
V6	Knowledge of strategy formulation
V7	Personal agendas
V8	Financial projections
V9	Informal discussions & interactions
V10	Views of companies top management
V11	Temporary alliances or subgroups formed
V12	Managers who are socially compatible
V13	Managers with very different skills
V14	Managers who respect superiors' opinions
V15	Managers trained in negotiating skills
V16	Evaluation of expected outcomes (probability)
V17	Comparison with risk profile of past projects
V18	Individual manager to champion and be responsible

The analysis produced a KMO measure of 0.724, with a significant Bartlett's test statistic of 0.0001 (see **Table 4.12**).

Table 4.12 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.724
Bartlett's Test of Sphericity	Approx. Chi-Square	447.037
	df	153.000
	Sig.	0.000

Five factors were extracted as shown in **Table 4.13** – Rotated Component Matrix. Factor 1 accounted for considerably more variance than the remaining four (23% compared to 12%,

9%, 7%, and 7%), however after extraction it accounted for only 16% of the variance (compared to 13%, 12%, 9%, and 9%) – refer to **Table 4.14**. The scree plot (**Graph 4.1**) justifies the retention of the five factors that were extracted. The curve begins to tail off after five factors, though there is another drop after the five factors before a stable plateau is reached. The rotated component matrix (**Table 4.13**) shows the factor loadings for the five factors sorted by size. Factor loadings less than 0.4 have not been displayed because the author, instructed SPSS to suppress any loading less than 0.4.

Table 4.13 Rotated Component Matrix [a]

	Component				
	1	2	3	4	5
Managers with very different skills	0.684				
Managers who respect superiors' opinions	0.670				
Managers trained in negotiating skills	0.615				
Brainstorming	0.607		0.412		
Personal agendas	0.590				
Managers who are socially compatible	0.529			0.523	
Evaluation of expected outcomes (probability)		0.744			
Financial projections		0.621			0.557
Industry's rule of thumb		0.620			
Comparison with risk profile of past projects		0.619			
Knowledge of strategy formulation			0.815		
Managerial experience			0.730		
Knowledge of competitors			0.682		
Comparing & contrasting new with previous		0.405		0.683	
Informal discussions & interactions				0.604	
Views of companies top management				0.550	
Temporary alliances or subgroups formed					0.656
Individual manager to champion and be responsible					0.603

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

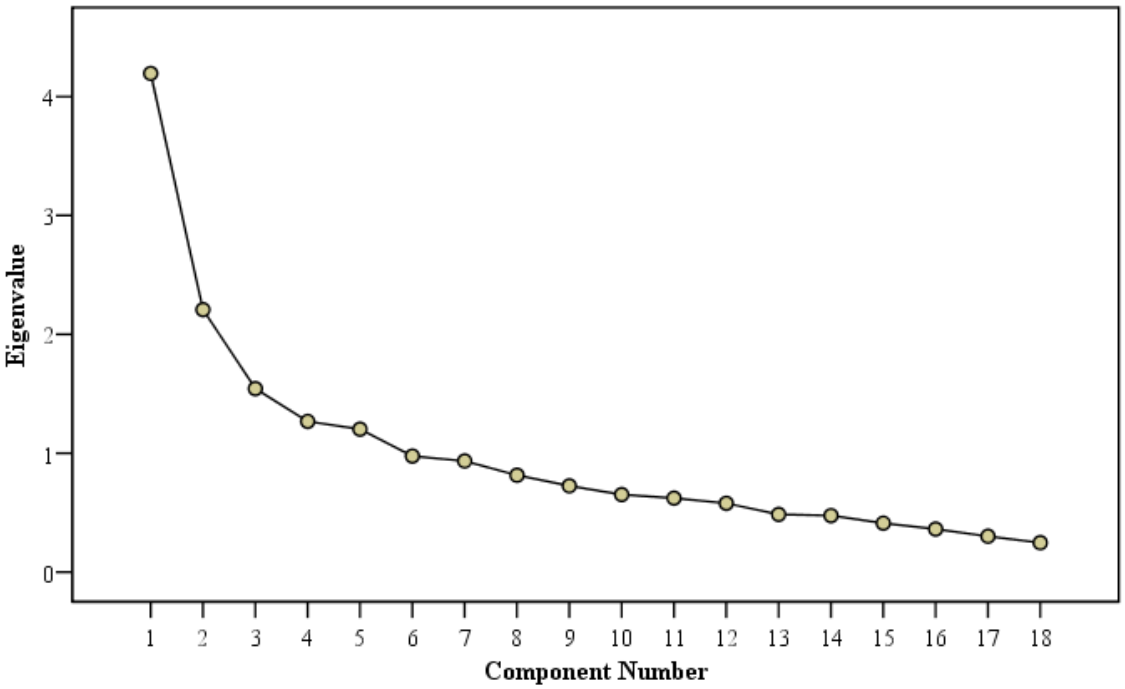
[a] Rotation converged in 12 iterations.

Table 4.14 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.195	23.305	23.305	4.195	23.305	23.305	2.807	15.592	15.592
2	2.208	12.265	35.569	2.208	12.265	35.569	2.293	12.737	28.330
3	1.543	8.574	44.143	1.543	8.574	44.143	2.087	11.595	39.925
4	1.268	7.042	51.185	1.268	7.042	51.185	1.667	9.260	49.185
5	1.202	6.678	57.864	1.202	6.678	57.864	1.562	8.679	57.864
6	0.976	5.422	63.286						
7	0.934	5.191	68.476						
8	0.815	4.526	73.002						
9	0.725	4.029	77.032						
10	0.652	3.622	80.653						
11	0.622	3.456	84.109						
12	0.579	3.215	87.324						
13	0.485	2.695	90.019						
14	0.475	2.639	92.658						
15	0.411	2.285	94.943						
16	0.362	2.011	96.955						
17	0.301	1.674	98.629						
18	0.247	1.371	100.000						

Extraction Method: Principal Component Analysis.

Graph 4.1 Scree Plot



The loadings were suppressed to less than 0.4 based on Stevens' (2001) suggestion that loadings greater than 0.4 would represent substantive values for interpretative purposes. The researcher then summarised how the variables load onto the same factor and only included variables with factor loadings of absolute values more than 0.5, as shown in **Table 4.15**. The loading of absolute values more than 0.5 were included because of the size of the sample i.e. 105. Stevens (2001) recommends that for a sample size of 100 the loading should be greater than an absolute value of 0.512, a value based on alpha level of 0.01 (two-tailed).

This is also in line with the arguments of Guadagnoli & Velicer (1988) that if a factor has four or more loadings greater than 0.6, then it is reliable irrespective of the sample size. The first two factors have four or more loadings greater than 0.6, while the next two have all three loadings greater than 0.6. Furthermore, MacCallum *et al.* (1999; 2001) indicate

that with communalities in the 0.5 range, samples between 100 and 200 can be good enough, provided that there are relatively few factors each with only a small number of indicator variables. An oblique rotation was conducted and pattern matrix and the structure matrix obtained (**Appendix 3**) and the same 5 factors emerged. These arguments were used as a basis of including all the five factors as key, and the labels assigned to them are

Table 4.15 Factor Labels and Factors

Factors & Variables	Factor Labels
Factor 1	
Managers with very different skills – Q27	***Group Processes – Consensus***
Managers who respect superiors' opinions – Q27	
Managers trained in negotiating skills – Q27	
Brainstorming – Q18	
Personal agendas – Q22	
Managers who are socially compatible – Q27	
Factor 2	
Evaluation of expected outcomes (probability) – Q28	***Risk & Return in SID***
Financial projections – Q23	
Industry's rule of thumb – Q18	
Comparison with risk profile of past projects – Q28	
Factor 3	
Knowledge of strategy formulation – Q20	***Application of Knowledge & Experience***
Managerial experience – Q27	
Knowledge of competitors – Q20	
Factor 4	
Comparing & contrasting new with previous – Q19	***Influences on Own Judgement***
Informal discussions & interactions – Q25	
Views of company's top management – Q25	
Factor 5	
Temporary alliances or subgroups formed – Q26	***Group Processes – Socio-political (Context)***
Individual manager to champion and be responsible – Q29	

included in italics in **Table 4.15**. The variables load highly onto the five factors and when the content of the questions that load onto the same factor were studied, the following common themes emerged. The five clusters of factors were considered and given the labels shown in **Table 4.15**.

To sum up, the analysis revealed five key clusters of factors in the analytical questionnaire: *group process – consensus*; *risk and returns in SIDs*; *application of knowledge and experience*; *influences of own judgement*; and *group process - socio-political* that occur during the SID process. Detailed statistical information of the Factor Analysis is contained in **Appendix 3**. The five factors were then subjected to further statistical analysis; however as discussed in **Section 4.2.2** reliability tests were run on all the five factors before further statistical tests.

4.3.2 Statistical Tests of the Factors

The five clusters of factors that were extracted **Section 4.3.1** were tested and the results of the test are presented in the next sub-section. To provide an understanding of the context of the process, the stages of SID in which the respondents were involved were evaluated to determine how the factors fit within the SID process. Accordingly, the sets of factors in **Table 4.15** were subjected to various statistical tests. They were also tested for relationships with the *typology* of SIDs and *experience* of respondents. The relationship between each of the above factors sets and the six types of SIDs discussed in **Section 4.2.3** was established, as well as the relationship between each of the factor sets with the two categories of managerial experience discussed in **Section 4.2.4**.

4.3.3 Comparisons

In this section, comparisons and contrasts are made between the sets of factors. How the variables within each set correlate with each other was examined to ensure that the variables measure the related features of SIDs. Spearman's correlation coefficients were

computed to measure the relationships, since the data were not continuous. The researcher then conducted cross-tabulation analyses between the variables in each set of factors and typology to examine the relationships between the set and the typology. In a similar way, the relationship between the factors and experience of managers were examined. Together with the cross-tabulations, χ^2 tests were conducted to indicate whether there are any statistically significant relationships. Gamma coefficients were also computed to measure the strength and direction of the relationships that were identified.

To make the χ^2 computed more meaningful, the Likert scales used for the questions were collapsed from six to three as follows:

- Considerable Extent & Great Extent.
- Reasonable Extent.
- Some Extent, Hardly at All & Not Applicable.

Although the scales were collapsed, all the variables and scales were included in the χ^2 calculations. The collapse was also carefully conducted to preserve the integrity of the data as it was originally collected. The results of these tests are presented in the next two subsections.

The five Sets of Factors vs. Typology

This subsection examines the correlations among the variables in each of the five sets of factors. It also looks at the relationships between each of the variables within the set and typology of SIDs the respondent managers were involved in.

Group Processes (Consensus) and Typology of SIDs

Spearman's ρ coefficients computed for the six variables within this factor set (**Table 4.16**) show that there was a statistically significant correlation, at 99% confidence level two-tailed, among the variables. Cross-tabulations show that the aspects of consensus included in the tests were generally important. 78% of respondents maintained that managers with different skills were important in gaining consensus; 53% that managers who respect

superiors' opinions was important; 65% that managers trained in negotiating skills was important; and 73% that brainstorming was used to a great or considerable extent during the process. However, 54% of the respondents rated personal agendas as hardly problematic and 56% of managers who are socially compatible as barely important in gaining consensus.

Table 4.16 Spearman's ρ Correlations

Spearman's ρ Correlations – Group Processes (Consensus)

		1	2	3	4	5	6
Managers with very different skills	**1**	1.000					
Managers who respect superiors' opinions	**2**	0.287**	1.000				
Managers trained in negotiating skills	**3**	0.333**	0.338**	1.000			
Brainstorming	**4**	0.340**	0.295**	0.254**	1.000		
Personal agendas	**5**	0.392**	0.310**	0.267**	0.147	1.000	
Managers who are socially compatible	**6**	0.318**	0.324**	0.349**	0.263**	0.400**	1.000

Spearman's ρ Correlations – Risk & Return in SIDs

		1	2	3	4
Evaluation of expected outcomes (probability)	**1**	1.000			
Financial projections	**2**	0.372**	1.000		
Industry's rule of thumb	**3**	0.269**	0.309**	1.000	
Comparison with risk profile of past projects	**4**	0.395**	0.212*	0.256*	1.000

Spearman's ρ Correlations – Application of Knowledge & Experience

		1	2	3
Knowledge of strategy formulation	**1**	1.000		
Managerial experience	**2**	0.352**	1.000	
Knowledge of competitors	**3**	0.434**	0.255**	1.000

Spearman's ρ Correlations – Influences on Own Judgement

		1	2	3
Comparing & contrasting new with previous	**1**	1.000		
Informal discussions & interactions	**2**	0.212*	1.000	
Views of companies top management	**3**	0.190	0.140	1.000

Spearman's ρ Correlations – Group Processes (Socio-political)

		1	2
Temporary alliances or subgroups formed	**1**	1.000	
Individual manager to champion and be responsible	**2**	0.321**	1.000

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Examination of the proportion of respondents within the two types of SIDs revealed that: the importance of managers with different skills, managers who respect superiors' opinions, managers trained in negotiating skills in gaining consensus, and the extent of the use of brainstorming during the SID, did not depend on the type of SID. In contrast, although personal agenda was hardly problematic for the non-product SIDs (70% of respondents in the non-product category compared to 47% in the product-related category considered it hardly problematic), it was problematic for the product-related SIDs (53% compared to 30%). In a similar way, though managers who are socially compatible was barely important in gaining consensus for non-product SIDs (74% compared to 47%), it was important for product-related SIDs (53% as compared to 26%). Therefore, relationships exist between SID types and the extent to which personal agendas were problematic during the SID and the importance of managers who are socially compatible in gaining consensus.

Table 4.17 Count – Typology * Personal Agendas

Type of SID	**Personal agendas**			**Total**
	Some Extent, Hardly At All & Not Applicable	Reasonable Extent	Great Extent & Considerable Extent	
Product-related SIDs	32	17	19	**68**
Non-product SIDs	23	1	9	**33**
Total	**55**	**18**	**28**	**101**

The χ^2 tests (**Table 4.18**) show that the relationship between typology and the extent to which personal agendas were considered problematic is statistically significant (p = 0.017 at 95% confidence interval two-tails). The relationship has a Gamma coefficient (**Table 4.19**) of -0.283, which indicates a relatively weak negative relationship between typology

and personal agendas during the SID process. This is probably because non-product SIDs are heavily influenced by external factors, which override personal agendas of the internal managers.

Table 4.18 Chi-square Tests – Typology * Personal Agendas

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.112 [a]	2	**0.017**
Likelihood Ratio	9.976	2	0.007
Linear-by-Linear Association	1.593	1	0.207
N of Valid Cases	101		

[a] 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.88.

Table 4.19 Symmetric Measures – Typology * Personal Agendas

		Value	Asymp. Std. Error [a]	Approx. T [b]	Approx. Sig.
Ordinal by Ordinal	Gamma	**-0.283**	0.190	-1.484	0.138
	Spearman Correlation	**-0.150**	0.101	-1.513	0.134 [c]
Interval by Interval	Pearson's R	-0.126	0.101	-1.266	0.209 [c]
N of Valid Cases		101			

[a] Not assuming the null hypothesis.

[b] Using the asymptotic standard error assuming the null hypothesis.

[c] Based on normal approximation.

Table 4.17 shows that 23 (i.e. 70%) out of 33 respondents involved in non-product SIDs considered personal agendas barely problematic during the SID process. In contrast, only 32 (i.e. 47%) out of 68 respondents involved in product-related SIDs found personal agendas problematic during the SID process. There was, however, no statistically significant relationship between typology and remaining aspects (p = 0.270, 0.462, 0.305, and 0.629 for managers with different skills, managers who respects superiors' opinions, managers trained in negotiating skills, and brainstorming respectively).

Group Processes (Socio-political) and Typology of SIDs

There were two variables included in the socio-political processes factor set: the occurrence of formation of temporary alliances or subgroup expressly for the purposes, and the

company's requirement for an individual manager to champion and be responsible for the SID. Spearman's ρ coefficients were computed for the two variables and the correlation between them was found to be statistically significant at 99% confidence interval (refer to **Table 4.16**).

More than half (58%) of the respondents concurred that formation of temporary alliances specifically for the purpose of the SID occurred during the process. Comparatively, a very high proportion of respondents' companies required individual managers to champion and be responsible for the SID (91% of respondents answered in the affirmative when asked about the extent of this requirement). When the proportion within typology was examined, 61% of respondent managers involved with product-related SIDs, compared to 51% for non-product SIDs, found that formation of temporary alliances was inevitable during SIDs. In contrast, a higher proportion (94% and 86% respectively) of respondents confirmed that their companies required individual managers to champion and be responsible for the SIDs. However, the companies appeared to greatly or considerably require an individual to champion and be responsible when the SID under consideration is of the product-related type (80% compared to 54% for non-product). χ^2 tests for the two variables show that there was a *statistically significant relationship* (**Table 4.21**) between typology and the requirement for an individual manager to champion and be responsible for the SID (p = 0.025).

Table 4.20 Count – Typology * Individual Manager to Champion & be Responsible

Type of SID	Individual manager to champion & be responsible			Total
	Some Extent, Hardly At All & Not Applicable	Reasonable Extent	Great Extent & Considerable Extent	
Product-related SIDs	4	10	55	**69**
Non-product SIDs	5	11	19	**35**
Total	**9**	**21**	**74**	**104**

Table 4.21 Chi-square Tests – Typology * Individual Manager to Champion & be Responsible

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.342 [a]	2	**0.025**
Likelihood Ratio	7.116	2	0.028
Linear-by-Linear Association	6.491	1	0.011
N of Valid Cases	104		

a 1 cell (16.7%) have expected count less than 5. The minimum expected count is 3.03.

Table 4.22 Symmetric Measures – Typology * Individual Manager to Champion & be Responsible

		Value	Asymp. Std. Error [a]	Approx. T [b]	Approx. Sig.
Ordinal by Ordinal	Gamma	**-0.500**	0.155	-2.567	0.010
	Spearman Correlation	-0.265	0.100	-2.770	0.007 [c]
Interval by Interval	Pearson's R	-0.251	0.100	-2.619	0.010 [c]
N of Valid Cases		104			

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

c Based on normal approximation.

From **Table 4.20**, it can be seen that 55 (80%) out of 69 respondents involved in product-related SIDs concurred that, to a great or considerable extent, their companies required an individual manager to champion and be responsible for the SIDs. The proportion was only 19 (54%) out of 35 respondents for non-product SIDs. As **Table 4.22** depicts, this relationship was moderately strong and negative (Gamma coefficient of -0.500). This is probably because product-related SIDs are greatly influenced by internal organizational factors which require co-ordination by an internal manager.

Risk and Return in SIDs and Typology of SIDs

Spearman's ρ coefficients computed for the four variables within this factor set (**Table 4.16**) show that there was a statistically significant correlation, at 99% and 95% confidence

intervals two-tailed, among the variables. 66% of the respondents to a great or considerable extent used evaluation of expected outcomes (based on probability or likelihood of alternatives) to assess the risk associated with the SIDs. 12% used this aspect to a reasonable extent, while only 22% hardly used this approach. In other words, 78% used evaluation of expected outcomes to assess the risk associated with the SIDs. Comparatively, only 58% compare risk identified for the SID with risk profile of similar past projects, in assessing risk. 93% of the respondents had access to financial projections during the SIDs; and 60% used industry's rule of thumb during the SID.

χ^2 tests show that there was *no statistically significant relationship* between typology and the four aspects of risk and returns in SIDs (p = 0.838, 0.344, 0.422 and 0.248 respectively). These aspects appear to be used irrespective of the types of SIDs involved, e.g. 79% of respondent managers involved in product-related SIDs and 74% of those involved in non-product SIDs used evaluation of expected outcomes to assess risk during SIDs. The figures were 91% & 97%, 56% & 69%, and 62% & 53% for access to financial projections, use of industry's rule of thumb, and comparison with the risk profile of past projects to assess risk associated with the SID respectively.

Application of Knowledge and Experience and Typology of SIDs

Spearman's ρ coefficients computed for the three variables within this factor set (**Table 4.16**) show that there was a statistically significant correlation, at 99% confidence interval two-tailed, among the variables. The results show that the aspects of application of knowledge & experience included in the tests were, overall, important in influencing the SIDs. A very high proportion of respondent considered knowledge of strategy formulation and managerial experience to a great and considerable extent important (68% and 74% respectively) in influencing the SID. Whilst, 93% and 89% considered these two aspects important in influencing SIDs, a relatively low proportion (61%) considered knowledge of competitors important.

When these aspects of application of knowledge and experience were examined vis-à-vis typology, they appear to be important irrespective of the types of SIDs under consideration. 93% of respondent managers involved in product-related SIDs and 96% of those involved in non-product SIDs considered knowledge of strategy formulation important in influencing the SIDs. The figures were 91% & 85%, and 61% & 62% for managerial experience and knowledge of competitors respectively. There was *no statistically significant relationship* between the three aspects and typology: χ^2 tests yielded *p* values of 0.772, 0.536 and 0.422 respectively.

Influences on Own Judgement and Typology of SIDs

Spearman's ρ coefficients were computed for the three variables within this variable set (**Table 4.16**). The only statistically significant correlation at 95% confidence interval two-tailed was that between comparing and contrasting new project with similar projects the managers were previously involved in and informal discussions and interactions with managers involved in the SID. The aspects of influences on own judgement included in the tests were important. 81% of respondents considered comparing and contrasting new project opportunities with similar projects they were previously involved with, to a great and considerable extent, important during SIDs; 83% considered that informal discussions with managers involved in the SID had great or considerable influence on their managerial judgement; while 82% believed that the views of top managers significantly influenced their managerial opinions of the SID.

When the importance within typology was examined, the results revealed that relatively similar proportions of respondents within product-related as well as non-product SIDs believed that comparing and contrasting new project opportunities with similar projects they were involved in were important (83% and 77% respectively). Likewise, relatively comparable proportions of managers involved with product-related (78%) and non-product (89%) SIDs believed that views of top management influenced their managerial judgement. However, a relatively higher proportion, i.e. 90% of respondents involved in product-related SIDs considered informal interactions with managers involved in the SID important

in influencing their managerial opinions, compared to only 69% of respondents involved in the non-product SIDs.

The χ^2 tests (**Table 4.24**) confirmed, at 95% confidence interval, that the relationship between typology of SIDs and the importance of informal discussions and interactions with managers involved in the SID was *statistically significant* (p = 0.015). The Gamma coefficient for this relationship was -0.447 (**Table 4.25**), which shows that there was a *moderately strong negative relationship*. Whilst 46 (66%) out of 70 respondents involved in product-related SIDs found informal discussions with managers involved in the SID greatly or considerably important during the SID, a relatively lower proportion 15 (43%) out of 35 respondents involved in the non-product SIDs found them greatly or considerably important (**Table 4.23**). This might be explained by the fact that non-product SIDs highly involves external managers, most of whom might not be socially close to internal managers.

Table 4.23 Count – Typology * Informal Discussions & Interactions

Type of SID	Informal Discussions & Interactions			Total
	Some Extent, Hardly At All & Not Applicable	Reasonable Extent	Great Extent & Considerable Extent	
Product-related SIDs	7	17	46	**70**
Non-product SIDs	11	9	15	**35**
Total	**18**	**26**	**61**	**105**

Table 4.24 Chi-square Tests – Typology * Informal Discussions & Interactions

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.368 [a]	2	**0.015**
Likelihood Ratio	8.019	2	0.018
Linear-by-Linear Association	7.752	1	0.005
N of Valid Cases	105		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.00.

Table 4.25 Symmetric Measures – Typology * Informal Discussions & Interactions

		Value	Asymp. Std. Error [a]	Approx. T [b]	Approx. Sig.
Ordinal by Ordinal	Gamma	**-0.447**	0.149	-2.569	0.010
	Spearman Correlation	-0.257	0.098	-2.704	0.008 [c]
Interval by Interval	Pearson's R	-0.273	0.098	-2.880	0.005 [c]
N of Valid Cases		105			

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

c Based on normal approximation.

The five Clusters of Factors vs. Experience of Managers

In this sub-section, the results of the tests of relationships between variables in each of the five factors' sets and experience of the respondents are discussed.

Group Processes (Consensus) and Experience of Managers

Managers with different skills were considered important to gaining consensus on the SID by 78% of the respondents. However, only 53% of the respondents considered managers who respect superiors' opinions important in gaining consensus and 65% believed that managers trained in negotiating skills were important. In addition, 73% used brainstorming during the SID process; 45% considered personal agendas problematic; while only 44% believed that managers who are socially compatible were important in gaining consensus.

When the six variables included were examined in relation to experience of the respondents, the proportion of managers who considered five of the six variables important were similar. 75% and 81% of the less-experienced (10 years or less) and the more-experienced (more than 10 years) respondents respectively, believed that managers with different skills were important in gaining consensus on the SID. The proportions were 54% and 53% respectively for managers who respect superiors' opinions; 68% and 62% respectively for managers trained in negotiating skills; 74% and 72% respectively for the use of brainstorming during SIDs; and 49% and 42% respectively for personal agendas

being problematic. In contrast, 57% of less-experienced respondents found managers who are socially compatible important in gaining consensus on the SID but only 32% of more-experienced managers considered this important.

It should however be noted that only 47% of the less-experienced respondents found managers with very different skills, to a great or considerable extent, important in gaining consensus on the SIDs, compared to 59% of the more-experienced ones. In a similar way, only 30% of less-experienced respondents believed that managers trained in negotiating skills were, to a great or considerable extent important, compared to 36% of more-experienced respondents. 55% of less-experienced managers considered the use of brainstorming, to a great or considerable extent important in comparison to only 42% of more-experienced respondents. The proportions of the less-experienced and the more-experienced respondents, who considered personal agendas greatly or considerably problematic and managers who are socially compatible greatly or considerably important, were more or less the same (29% & 27%, and 22% & 19% respectively).

The results of χ^2 tests indicate that the only statistically significant relationship was that between *experience and managers who are socially compatible* (p = 0.018 at 95% level) – **Table 4.27**. The raw data in **Table 4.26** shows that a relatively higher proportion (28 (57%) out of 49) of less-experienced respondents found managers who are socially important in gaining consensus. The proportion was only 17 (32%) out of 53 for the more-experienced respondents. The value of the Gamma coefficient was -0.346 (**Table 4.28**) and shows a negative and moderately strong relationship.

Table 4.26 Count – Experience * Managers who are Socially Compatible

How long worked for the company	**Managers who are socially compatible**			**Total**
	Some Extent, Hardly At All & Not Applicable	Reasonable Extent	Great Extent & Considerable Extent	
10 years or less	21	17	11	**49**
More than 10 years	36	7	10	**53**
Total	**57**	**24**	**21**	**102**

Table 4.27 Chi-square Tests – Experience * Managers who are Socially Compatible

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.017 [a]	2	**0.018**
Likelihood Ratio	8.181	2	0.017
Linear-by-Linear Association	3.232	1	0.072
N of Valid Cases	102		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.09.

Table 4.28 Symmetric Measures – Experience * Managers who are Socially Compatible

		Value	Asymp. Std. Error [a]	Approx. T [b]	Approx. Sig.
Ordinal by Ordinal	Gamma	**-0.346**	.155	-2.123	0.034
	Spearman Correlation	-0.207	.098	-2.120	0.036 [c]
Interval by Interval	Pearson's R	-0.179	.098	-1.818	0.072 [c]
N of Valid Cases		102			

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

c Based on normal approximation.

The relationship between experience and the remaining aspects was not statistically significant. The *p* values for importance of managers with different skills in gaining consensus; importance of managers who respect superiors' opinions in gaining consensus; importance of managers trained in negotiating skills in gaining consensus; the extent of the use of brainstorming; and the extent to which personal agendas were considered problematic, were 0.505, 0.452, 0.916, 0.331, and 0.745 respectively.

Group Processes (Socio-political) and Experience of Managers

Included in this factor set are two variables: the extent to which temporary alliances or subgroups were formed expressly for the purpose of the SID and the requirement for an individual manager to champion and be responsible for the SID. Largely, while a relatively lower proportion (58%) of managers agreed that there were of formation of temporary alliances during the SID, a higher proportion (91%) of managers confirmed that their

companies required individual managers to champion and be responsible for the SID. Examination of the percentage within experience shows that there were 42% of less-experienced managers who noted that there was frequent formation of temporary alliances and subgroups expressly for the purpose of the SID compared to only 30% of the more-experienced managers. There was a similar difference between the proportion of less-experienced and more-experienced managers who considered that there were low occurrences of this aspect (48% and 37% respectively).

Overall, a lower proportion of more-experienced managers believed that there was both very high (30%) and low (37%) occurrences temporary alliances or sub-groups during SIDs. As for the requirement for individual managers to champion and be responsible for the SID, there appear to be no relation with experience. Relatively the proportions of both less-experienced and more-experienced managers who were aware of the requirement were similar.

The results of χ^2 tests demonstrate that the only statistically significant relationship between experience and the two aspects of socio-political processes was that with formation of temporary alliances or subgroup expressly for the purpose of the SID. As **Table 4.30** shows, $p = 0.016$, at 95% significance level, for this relationship. A higher proportion of less-experienced managers (21 out of 50 i.e. 42%) found that alliances or subgroups were greatly or considerably formed during the SID: the proportion was only 16 out of 54 i.e. 30% for the more-experienced ones. The Gamma coefficient of -0.001 (**Table 4.31**), however indicates that this relationship is negative and very weak.

Table 4.29 Count – Experience * Temporary Alliances or Subgroups

How long worked for the company	**Temporary alliances or subgroups**			**Total**
	Some Extent, Hardly At All & Not Applicable	Reasonable Extent	Great Extent & Considerable Extent	
10 years or less	24	5	21	**50**
More than 10 years	20	18	16	**54**
Total	**44**	**23**	**37**	**104**

Table 4.30 Chi-square Tests – Experience * Temporary Alliances or Subgroups

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.245 [a]	2	**0.016**
Likelihood Ratio	8.688	2	0.013
Linear-by-Linear Association	0.007	1	0.935
N of Valid Cases	104		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.06.

Table 4.31 Symmetric Measures – Experience * Temporary Alliances or Subgroups

		Value	Asymp. Std. Error [a]	Approx. T [b]	Approx. Sig.
Ordinal by Ordinal	Gamma	**-0.001**	0.163	-0.007	0.995
	Spearman Correlation	-0.001	0.100	-0.007	0.994 [c]
Interval by Interval	Pearson's R	-0.008	0.099	-0.081	0.936 [c]
N of Valid Cases		104			

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

c Based on normal approximation.

Risk and Return in SIDs and Experience of Managers

There were four variables included in this factor set and cross-tabulations of these variables with experience of the respondents revealed the following. Overall, 78% of the managers considered evaluation of expected outcomes based on probabilities or likelihood of alternative outcomes important for assessing risk associated with the SIDs. 92% of the managers had access to financial projections, 60% used industry's rule of thumb, whereas 59% believed that comparison of the risk associated with the SID with risk profile of past projects was important for assessing risk associated with the SID.

When the proportions within experience were examined, the proportions of less-experienced and more-experienced managers that considered each of the four variables greatly or considerably important (accessible or used), were more or less the same apart

from the proportions for evaluation of expected outcomes. Whereas only 54% of less-experienced managers considered evaluation of expected outcomes based on probabilities or likelihood of alternative outcomes very important for assessing risk associated with the SID, a higher proportion (77%) of more-experienced managers believed that evaluation was greatly or considerably important. In a similar way, only 9% of more-experienced managers compared to 36% of less-experienced managers considered evaluation hardly important.

The results of the χ^2 tests, demonstrate that the relationship between experience and evaluation of expected outcomes based on probabilities or likelihood of alternative outcomes to assess the risk associated with the SID was statistically significant with p = 0.005 at 95% level (**Table 4.33**). Indeed, as **Table 4.32** shows, 18 (37%) out of 49 less-experienced managers considered evaluation barely important, compared to only 5 (9%) out of 53 of the more-experienced. The Gamma coefficient was 0.508 (**Table 4.34**) illustrating that the relationship was positive and relatively strong.

Table 4.32 Count – Experience * Evaluation of Expected Outcomes

How long worked for the company	**Evaluation of expected outcomes**			**Total**
	Some Extent, Hardly At All & Not Applicable	Reasonable Extent	Great Extent & Considerable Extent	
10 years or less	18	5	11	**49**
More than 10 years	5	7	10	**53**
Total	**23**	**12**	**21**	**102**

Table 4.33 Chi-square Tests – Experience * Evaluation of Expected Outcomes

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	10.485 [a]	2	**0.005**
Likelihood Ratio	10.950	2	0.004
Linear-by-Linear Association	9.169	1	0.002
N of Valid Cases	103		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.83.

Table 4.34 Symmetric Measures – Experience * Evaluation of Expected Outcomes

		Value	Asymp. Std. Error [a]	Approx. T [b]	Approx. Sig.
Ordinal by Ordinal	Gamma	**0.508**	0.147	2.962	0.003
	Spearman Correlation	0.281	0.093	2.945	0.004 [c]
Interval by Interval	Pearson's R	0.300	0.090	3.158	0.002 [c]
N of Valid Cases		103			

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

c Based on normal approximation.

The relationships between experience and the other three variables were not statistically significant i.e. p = 0.456, 0.303, and 0.754 for access to financial projections, the use of industry's rule of thumb, and the comparison of risk associated with the SID with risk profile of past projects respectively.

Application of Knowledge and Experience and Experience of Managers

This factor set comprised three variables and cross-tabulations of experience of the managers with the three variables reveal that, the respondents considered the three aspects of application of knowledge and experience important in influencing SIDs. 93% of the managers believed that knowledge of strategy formulation in their respective companies had important influence on the SID; 89% considered managerial experience important; however, only 60% of the managers considered the knowledge of competitors important.

When the % within experience was examined, the proportion of managers who considered the three aspects of application of knowledge and experience important, were more or less the same. 92% of the less-experienced managers and 94% of those that were more-experienced considered knowledge of strategy formulation important in influencing the SIDs. The proportions were 88% and 91% respectively for the importance of managerial experience in influencing the SID, while a relatively lower proportion (62% of less-experienced managers and 60% of those more-experienced) considered knowledge of

competitors important. The relationships between experience and the three aspects *were not statistically significant*. χ^2 tests resulted into *p* values of 0.417, 0.877 and 0.509 respectively for the relationships between experience and knowledge of strategy formulation, managerial experience and knowledge of competitors.

Influences on Own Judgement and Experience of Managers

Again there were three variables tested in this factor set, viz.: the importance of comparing and contrasting new project opportunities with similar projects the managers were involved in during the SID process; the extent to which informal discussions and interaction with managers involved in the SID altered managers' opinions on the SIDs; and the extent to which top managers' views altered managerial judgement on the SIDs.

The percentage of managers who found these influences on own judgement important were high. 89% of the respondents believed that comparing and contrasting new projects with previous projects they were involved in were important during the SID process. This was similar to the proportion (83%) of respondents who found that informal discussions and interactions with managers involved in the SID, and the percentage (82%) of respondents who found the views of top management altered their managerial opinions. Examination of the proportion within experience did not reveal any statistically significant difference between the proportions of managers in each category of less-experienced and more-experienced managers who considered each of the three influences important.

χ^2 tests results confirmed that the relationships between experience of managers and each of the three influences were *not statistically significant*. *p* values of the three aspects were 0.601, 0.099, and 0.497 for the importance of comparison and contrasting new projects with previous projects; the extent to which informal discussions and interactions with managers involved in the SID altered managerial opinions; and the extent to which the views of top management altered managers' judgement respectively.

4.3.4 Key Findings

In this final sub-section of **Section 4.3**, the key findings of the survey phase of the study are summarised. The survey phase of the study has revealed interesting factors and patterns in the data collected. Five key sets of factors emerged as important to the SID process from the Principal Component Analysis of the data *viz.*: *group processes (consensus), group processes (socio-political), risk & return in SIDs, application of knowledge & experience,* and *influences on own judgement*. Levels of reliability for these factors were satisfactory; Cronbach's α coefficient exceeding 0.6 for four of the five variable sets; and the Spearman's ρ showed strong and statistically significant (at 99% & 95% level) correlations among the variables included in each set.

In relation to the SID processes in various business organisations, irrespective of sizes of the company, the survey data appear to support the emergent model of the SID process of up to 12 stages. The 12-stage SID process confirms the findings of previous research by Harris (1999). The stages identified by these earlier researches are however varied and range from three (Bower, 1986) to seven (Harris, 1999) stages with sub-processes. The 12 stages that emerged in this study can be collapsed to fit within the stages in the literature, and they appear to be a refinement of the stages in the earlier studies, which probably is indicative of the importance that managers give to the process at this point in time. The stages identified by Harris (1999) and Pike & Neale (2003), provides for feedback loops within the process. Dyson (1990) looked at strategic decision process within strategic planning and identified eleven components of the process with feedback loops.

As regard managers' involvement in the SID process, the findings show that multidisciplinary (with both financial and non-financial training) managers were involved in the SID process. Further, the managers appear to be involved both directly and through consultation by managers indirectly involved in the process. The findings on multiple managers' involvement in SIDs support the findings of Ahrens & Chapman. (2000) that MAs have dual or multiple qualifications.

In relation to the five sets of factors, the following key findings have emerged from the analysis of the survey data.

1. *Influences on own judgement* altered managerial opinions considerably or greatly during the SID process. Comparing and contrasting new project opportunities with similar projects the manager was involved in, was important during the SID process. There was also evidence that points to *informal discussions and interaction with managers* involved in the SID influencing managerial opinions. Similarly, the views of top management influenced managerial judgement. Informal discussions and interactions with managers involved in the SID were *more influential* in altering the opinions of managers involved in product related SIDs, than those involved in the non-product SIDs. These three aspects of influences on own judgement did not appear to be associated with the experience of the managers. The findings on influences on managers' own judgement provide new insights into managerial judgement during SIDs. These factors had not been explicitly identified within literature relevant to SIDs. Butler *et al*. (1993) identified that one source of influence in the managerial decision making process is top management's guidance and control over the process. The distinction in this study is that comparing and contrasting new project opportunities with similar projects the manager was involved in emerged as more important. Similarly, informal discussions and interaction with managers involved in the SID were more influential in altering managerial opinions. Hickson *et al.* (1986) noted that the selection of managers who get involved in the SID process depended on the patterns of influence among the participating managers. The patterns of influence, however, take place against a background of interests and organisational power, which determines who gets involved, who has most influence over the direction of the decision, the extent to which external influence affects the managerial decision, and the manner in which authority within the organisation is exercised (Butler *et al.*, 1993).

2. Group processes for gaining *consensu*s were generally important during the SID making. There was also a strong indication that personal agendas during the SID

process might prove problematic to gaining consensus if the SID under consideration is the product related type. Furthermore, evidence in the data showed that managers who are *socially compatible* were important to gaining consensus on the SID *if the managers involved are less-experienced* and less important if the managers involved are more-experienced. The findings on group processes (consensus) support the observations by Bower (1986) and King (1975) that human factors influence capital budgeting. However, the extent to which personal agendas may prove problematic appears not to have been identified in earlier literature, more so when managers are dealing with product related SIDs. In addition there appears to be fresh evidence that managers who are socially compatible are important to gaining consensus, mainly when the managers involved are less-experienced.

3. *Socio-political* processes applied during the SID process. It was important to have *an individual manager to champion* and be responsible for the SID, though this *appears to vary with the types of SID*. It was more important to have an individual manager to champion and be responsible for the SID for the product-related SIDs than for the non-product SIDs. There was also slight evidence in the data that the *more-experienced* the managers involved in the SID, the *less the extent to which people formed temporary alliances* or subgroups expressively for the purpose of the SID. These findings support the findings of prior research e.g. Bower (1986) and Lumijärvi (1991), which detected group behaviour through case studies. The requirement of companies to have an individual manager to champion and be responsible for the SID shows that there is a need for an individual (group of individuals) to canvass support for their project and negotiate it up through the hierarchy of an organisation, giving the project *thrust* (Bower, 1986; Lumijärvi, 1991). Moreover, the findings that managers form temporary alliances or subgroups specifically for the purpose of the SIDs support the findings of Mintzberg *et al*. (1976) who identified intense political activity in several cases, including evidence of coalitions formed to protect common interests. However, this study found that the extent to which managers form temporary alliances tend to diminish with experience of managers.

4. Assessment of the *risk-return trade off* in SIDs was an important managerial exercise during the SID process. There was evidence in the data that points toward evaluation of expected outcomes based on probability or likelihood of alternatives being greatly or considerably used for assessing risk associated with the SIDs irrespective of the types of SID. The analysis shows that the *more-experienced the managers* involved in the SID, the *more use was made of the evaluation of expected outcomes* based on probability or likelihood of alternatives to assess the risk associated with the SID. These findings on risk and returns support the findings of Barnes (1984) and Tversky & Kahneman (1974) that availability heuristics are employed during decision making. The great or considerable use of evaluation of expected outcomes based on probability or likelihood of alternatives to assess risk associated with the SIDs support finance theory, which assumes that managers rationally consider all possible outcomes and weigh their likelihood of occurrence (Simon, 1957; Hargreaves-Heap, 1989).

5. *Application of knowledge & experience* was important in influencing the SID. Knowledge of *strategy formulation* and *managerial experience* were particularly very important in influencing the SID. They were *important irrespective of the types of SID or the experience* of the managers involved. These findings are similar to the evidence of Abele *et al*. (2004) that two crucial elements of information processing are the data-driven inputs and the knowledge that is brought to the situation. Carr & Tomkins (1996) and Bierman & Smidt (1988), for example, noted that strategy plays an important role in investment decision making. The importance that respondents attached to knowledge of strategy formulation in influencing the SIDs is in line with the theory that, most investments follow from the organisation's strategies; which reflect special skills and abilities, or comparative advantage of the company over others. The findings also support Simpson's (2003) observation that abundant past experiences would allow managers to comfortably make reasonable decisions otherwise they have to consult others.

The final section concludes the chapter. It links the key findings discussed in this section to the follow-up interviews. The survey findings and those from the case studies are later discussed in **Chapter 7** – Discussion of Key Findings. The discussion of key findings from the survey and the case studies are combined in one chapter to make the discussion holistic and ease cross referencing. The key results from the survey analysis are therefore discussed fully in **Chapter 7**.

4.4 Chapter Summary

This section summarises the chapter and links the key findings of the survey to the follow-up interviews. It is divided into two subsections: the first discusses the link between the survey findings and the follow-up interviews and the second concludes the Chapter.

4.4.1 Key Findings and the Follow-up Interviews – Case Studies

The five key factors that emerged from the survey analysis were followed-up in the next phase of the study. Evidence obtained points towards the key findings discussed in the foregoing section, however, probable explanations were necessary, and before attempting to offer any explanation, it was vital that the evidence was corroborated by data from other sources. Accordingly to determine the most reasonable explanations, the survey findings were triangulated with findings from the case studies to improve the reliability and validity of the conclusions contained in **Chapter 8**. Data were collected from case study interviews and publicly available information on these cases to supplement the survey evidence, and the findings from the cases are examined in **Chapters 5** and **6**.

The survey findings were used to inform the follow-up interviews that were conducted on a case by case basis (as discussed in **Subsection 3.2.4**). The Interview Protocol (**Appendix 4**) was based on five themes that emerged from the survey, namely: group processes (consensus), risk and returns in SIDs, application of knowledge and experience, influences on own judgement, and group processes (socio-political). In addition contextual

information on each of the cases was also collected to provide interviewees' profile, SID types, and company operating and strategic context. The interviewees were selected from among the managers who participated in the survey (**Subsection 3.2.1**).

4.4.2 Summary

In the main, this Chapter presented the survey data and analyses conducted. The managers who responded to the survey were from various professional, experiential and functional backgrounds, and they were involved in up to 12 identifiable stages of the SID process. The study therefore involved a mixture of managers with both financial and non-financial training with experience in their respective companies ranging from less than five years to more than 20 years. The managers also held various managerial positions with various job titles, and were involved in up to six different types of SIDs, both product related and non-product.

The key findings of the survey are that five key variable sets (group processes (consensus), group processes (socio-political), risk and returns in SIDs, application of knowledge & experience, and influences on own judgement) emerged from the Principal Component Analysis of the data. The sets had satisfactory internal consistency at Cronbcah's reliability coefficient of 0.6 and above for four of the sets and statistically significant Spearman's correlation coefficients. There were also statistically significant relationships between some of the variables in the sets and typology of the SIDs the managers were involved in, as well as the experience of the managers.

The relationship between typology of SID and the extent to which personal agendas were considered problematic was statistically significant (p = 0.017 at 95% confidence interval two-tails). Next, the relationship between typology and the importance of informal discussions and interactions with managers involved in the SID was statistically significant (p = 0.015 at 95% confidence interval two-tails). Then there was a statistically significant relationship between typology and the requirement for an individual manager to champion

and be responsible for the SID (p = 0.025 at 95% confidence interval two-tails). There was also statistically significant relationship between experience and managers who are socially compatible in gaining consensus on the SID (p = 0.018 at 95% level). Further, the relationship between experience and evaluation of expected outcomes based on probabilities or likelihood of alternative outcomes to assess the risk associated with the SID was found to be statistically significant with p = 0.005 at 95% level. Finally, the relationship between experience and the formation of temporary alliances or subgroup expressly for the purpose of the SID was statistically significant with p = 0.016, at 95% significance level.

The key survey findings and key findings from the case studies are discussed in **Chapter 7** of the thesis. Most importantly, the survey findings informed the case study phase of the study (**Section 3.2.4**), and in the next two chapters the case by case analysis (**Chapter 5**) and cross-case analysis (**Chapter 6**) are presented and examined.

Chapter Five

Analysis of Data from the Cases

Chapter 5

Analysis of Data from the Cases

Overview and Framework for Analysis

In this chapter the data from case studies is analysed. The data was collected using the interview protocol (**Appendix 4**) derived from the five factors that emerged from the survey analysis, namely: group processes (consensus), risk and returns in SIDs, application of knowledge and experience, influences on own judgement, and application of socio-political processes. Contextual information on each of the cases is discussed to provide the company's operating context, strategic direction, industry factors, typology of SIDs, and profile of participating managers. This is then followed by an analysis of the SID process, and the nature of managerial involvement in the process based on the framework for analysis discussed later.

Sources of data collected

To make the analysis complete, and allow the reader to understand the nature of data, comprehend the analysis and appreciate the application of the conceptual model better, the sources of the data analysed has been presented and briefly described. The data came mainly from four sources: the analytic survey questionnaire; the interviews; internal company documents, and publicly available information.

Table 5.1 Summary of Sources of Data from the Case Companies

Cases	Sources of Data				
	No. of Questionnaires	Free-Text in Questionnaires	No. of Interviews	Internal Company Documents	Publicly Available Data
I METAL plc	4	High	1	Exist / No Access	High
II UTILITY plc	3	High	2	Exist / Accessed	High
III BEVERAGES plc	3	Low	1	Exist / No Access	High
IV CHEMICALS plc	1	Medium	1	Exist / No Access	Medium
V HEALTHCARE Ltd	3	Low	3	Does not Exist	Low
VI CAMERA Ltd	1	Medium	1	Exist / Accessed	High
Total	**15**	-	**9**	-	-

Table 5.1 provides a summary of the amount of information obtained from each source for the six case companies. Internal company documents included manuals for capital expenditure and investment decisions. The manuals existed in five of six cases and were accessed in two of six cases. Sources of publicly available information included: company accounts and reports; government publications; industry association newsletters; trade journals; stock market analysts' reports; and last but not least business press.

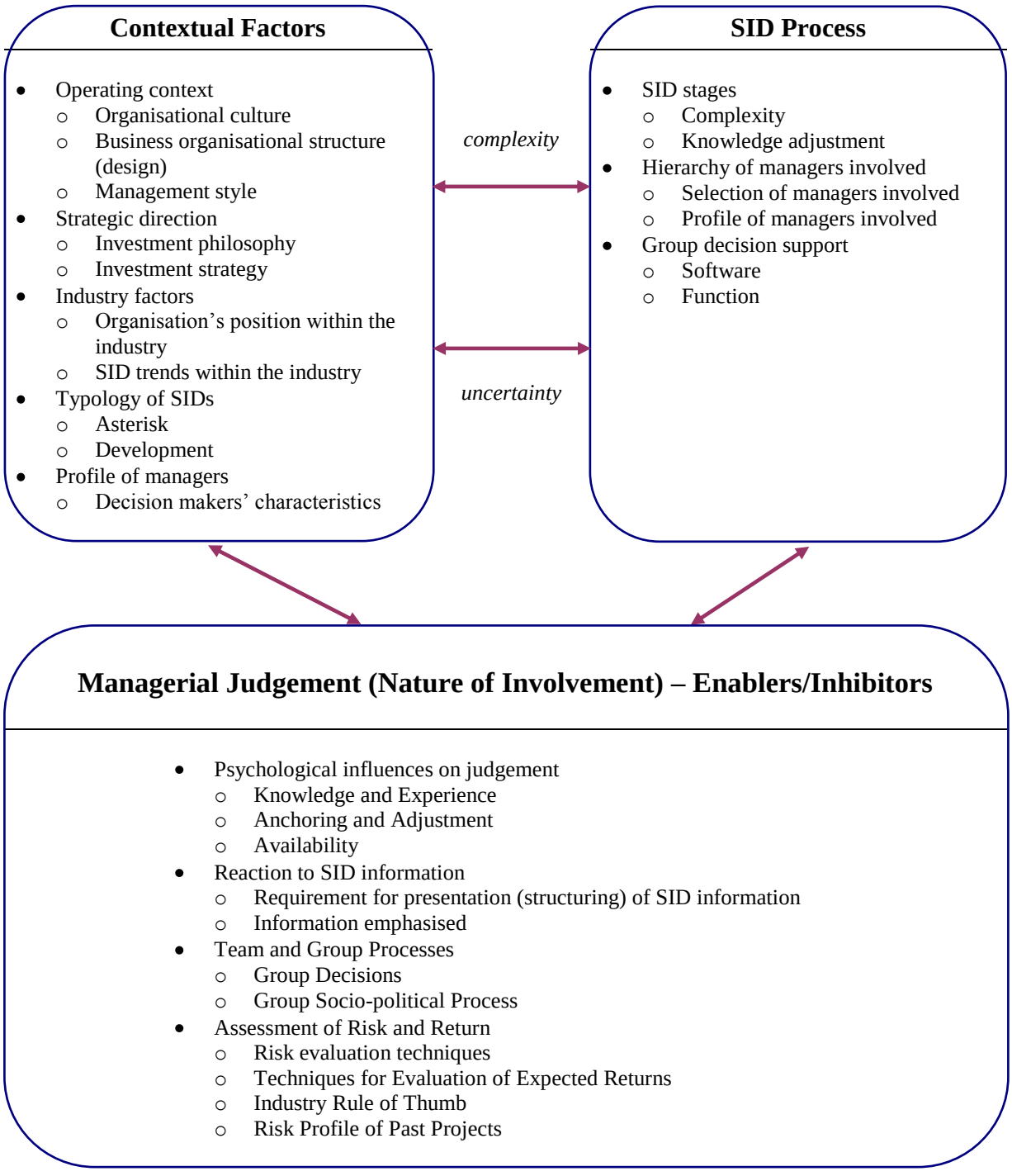
Phases of the Analytic Framework of SID Making

As depicted in **Figure 5.1**, the analytic framework is divided into three main parts, namely: contextual factors, the SID process, and managerial judgement (nature of involvement). The analysis of the data from each of the cases is therefore broken down into the three parts. The detail of the categories summarised in the analytic framework are shown in the template for analysis (**Appendix 5**). The categories are hierarchical with three levels – the lower levels representing greater depth of analysis.

Contextual factors: To put the analysis of cases within context, the contextual factors in each case are discussed. These include: the operating context, strategic direction, industry factors, typology of SIDs and the profile of the managers involved in the SID process who participated in the study. Contextual factors within organisations could be diverse and might be simple or very complex and the environment in which the company operates are usually shrouded with uncertainties. These factors would have a bearing on the SID process that occurs within the company and might make it simple or complex. The operating context included organisational culture, business design and management style.

In this study *organisational culture* was defined as a set of values or beliefs that is unique to an organisation (Cameron & Quinn, 2006). Organisational culture, among other things, guides decision making and would be expected to impact upon SID in any organisation. Each case's organisational culture was classified according to Handy's (1995) four *gods of management* (**Zeus**, **Apollo**, **Athena** and **Dionysus**) whose names are given to the philosophy of management and organisational culture: Zeus culture, Apollonian culture,

Figure 5.1 Analytic Framework of SID Making



Athenian culture and Dionysian culture. However, the culture existing in any organisation cannot be precisely defined or recognised. The features of each of the culture recognizable in each case company were matched to the characteristics of the 'gods' to determine which god best represented the culture in the case company.

Management styles have been classified according to the common classification of leadership styles, i.e. *autocratic* or authoritarian, *laissez-faire*, *consultative* and *democratic* or egalitarian or participatory. Managers normally use the style that they are most comfortable with, and may use different styles in different situations. However, in this study, on the balance of evidence, only one type of management style is attached to a case.

Typology of SIDs has been categorised into two: **asterisk** and **development** SIDs**.** Asterisks are exceptional SIDs, which are undertaken to counter or prevent an organisation failing e.g. mergers, acquisitions, restructuring etc; whilst development SIDs deal with situations or problems that require an organisation to adapt and usually include new or development in their names, e.g. product development, market development, site development, new technology, etc.

The SID process: This section of analysis looks at the various stages of SID; hierarchy of the managers involved; and group decision support techniques used. However, during the SID process managers would be expected to exercise managerial judgement on a number of issues and this is the subject of the next phase of analysis.

Managerial judgement: Managerial judgement takes place within the organisational context and during the SID process. It is therefore influenced by both the organisational context and the SID process. In this part of the analysis, the data from all four sources, for each case, was examined for: psychological influences on judgement; managers' reaction to SID information; team and group processes; and assessment of risk during SID making. These factors were identified during the analysis of the survey data contained in **Chapter 4**. In this phase of analysis, the researcher has also identified behaviours exhibited during

managerial judgement, which would enhance/enable (+) and those that would inhibit (–) SID making.

For the purpose of this study, ***enhancers/enablers*** have been defined as '*aspects of an identified factor, which encourage, elevate, promote or facilitate managerial judgement and involvement in SIDs*'. These aspects would increase or improve the effectiveness of managerial judgement and involvement, hence the + sign attached. In contrast ***inhibitors*** have been defined as '*aspects of the factor that discourage, retard or stop managerial judgement and involvement in SIDs*'. These aspects would reduce the effectiveness of managerial judgement, hence the – sign attached.

Case Summary

Case summaries have been provided reviewing the key findings that are discussed using the three phases of the analytic framework.

Anonymity and Confidentiality of Case Companies and Interviewees

Each case company has been given a fictitious name to hide its identity in order to maintain the anonymity and confidentiality promised the participants. Similarly, the individual interviewees were also quoted anonymously, referring to each of them only as MANAGER...

The Remainder of the Chapter

The remainder of the chapter analyses Case I in Section 5.1, Case II in Section 5.2, Case III in Section 5.3, Case IV in Section 5.4, Case V in Section 5.5 and Case VI in Section 5.6.

5.1 Case I – METAL plc

METAL plc was a large UK-based company classified as 'large' under the Companies Act 1985 (as amended) company classification. It operated within the steel and other metals sector. Data analysed in this section comprised the analytic survey questionnaire, interview transcripts, information contained in the company's financial statements, and other publicly available information.

5.1.1 Contextual Factors

METAL plc was a leading metal group formed as a result of a merger in the 1990s. The company's shares were listed on the London, New York and Amsterdam stock exchanges; with approximately half of its shareholders in the UK. The company provided steel and aluminium products and services to customers worldwide.

Operating Context

Organisational Culture: The organisational design of METAL plc was formalised and highly structured. The managers were governed by procedures during the decision making. Therefore the company exhibited an *Apollonian culture*. This culture shaped SID making within the company as the formalised structure and procedures acted as a guide to the managers. Each manager who got involved could easily establish their role and responsibility in the process.

The company was *divisionalised* with each division responsible for SID ideas, which is done in consultation with Head Office *departments*, such as Corporate Finance, Corporate Strategy, etc (a feature of the Apollonian culture). The interviewee mentioned during the interview that:

> "… [the progress of a project] depends on whether the people at the **most senior level** [are] actually happy that the project [had] been properly and **comprehensively evaluated:** all the risk assessed etc"

This implies that *power* is at the *top* and that SID issues were analysed in a *logical manner*; both are features of the Apollonian culture. In addition, while going through the stages of the SID process, he said:

> "The first thing is to formulate the corporate strategy, which is normally done by the Internal **Management Committee** of the company, comprising the Managing Director and some of the other Executive Directors and managers who sit on the **Management Board** of the Managing Directors. The strategy has to be approved by the **main Board** of the company. That is the way it normally works."

This is indicative of an Apollonian culture, in which heads of divisions and functions join together to form the Board of management, committee, president's office, etc; and emphasizes committees. When talking about interactions among managers during the SID process, the interviewee said: "In the first case I was relaying to you, there was a **Steering Committee**, and the members would have their meetings." Again on another occasion he mentioned: "I actually sit on the **Audit Committee**."

Further when the interviewee was describing his job at the company he mentioned:

> "I will base this on the current **job** I am doing i.e. Director of Corporate Finance. I am **responsible for** all the funding instruments of the company e.g. the bank facilities, the various bonds, convertible bonds, and letters of credit. I also deputise for the Executive Director Finance, who sits on the main board; so I get lots of strange **jobs** to do that really don't fit into anybody else's **role**."

This is another feature of the Apollonian culture which defines role or job to be done clearly and fixed with clear responsibilities and reporting relationships and organisation structure. Again when talking about his experience, the interviewee said:

> "I **started at the bottom of the pile** after graduating from the University with a degree in Economics and Accountancy and **worked my way up**. I worked in Cost and Management, then at one point I was the Manager Mergers and Acquisitions, and at some point the Director of Finance for one of the divisions. Throughout my **career** I have been involved in ... merger and acquisitions and I had a variety of roles, both in acquisition of companies, disposal of companies, and major internal investments"

In this company, employees joined the organisation and worked their way to the top, a feature of the Apollonian culture.

The case company can be described as bureaucratic, another feature of Apollonian culture, since when asked whether there are any procedures the managers were required to follow the interviewee said:

> "We have a Capital Expenditure **Manual** and there is also an M and A (Merger and Acquisition) GPD (Group Policy **Document**). These are **huge documents** and are found on the Companies Intranet"

And when asked about risk registers: "we have about 21/22 business units and they then feed into four divisions and the divisions into the group".

Business Design: METAL plc was a divisionalised organisation. Each division had an Internal Management Committee (Internal Board) comprising the Managing Director, other Executive Directors, and managers who sit on the Management Board of the Managing Director. The committee was responsible for the investment decisions of the division. At group level was the main Board of the company as well as Head Office departments such as Corporate Finance Department, Corporate Strategy Department, etc., each of which was headed by a director. METAL's key operations were in France, Germany, Belgium, Norway, the Netherlands, the United States and the United Kingdom: though it had global sales in more than 40 countries.

Management Style: Top managers of METAL plc encouraged management by consensus. Sponsors of an SID made an effort to involve all relevant stakeholders from the inception of the project. This was aimed to ensure that nobody threw a "spanner in the works" during the SID process. Consensus was sought during SID making, and managers given responsibilities, which showed confidence that was put in them. This management style is *consultative* and seemed to enhance managerial involvement in SID. According to the interviewee, managers wanted to be seen to be playing their part in contributing to the company's success. During SIDs managers were heavily consulted by the sponsor(s) of the project. As the interviewee put it:

> "There is a lot of meeting behind closed doors, a lot of discussions. … The process does not … simply comprise formal milestones along the road, but entails an awful lot of work behind the scene. In fact there is a lot of networking … managers who are sensible do a lot of networking in advance to make sure that they understand other people's concerns about the project and they address those concerns. Most managers do a lot of behind the scene works because it is too dangerous not to, and a lot of problems get ironed out behind the scenes. By doing all the behind the scene works, you end up with a far better proposal and the proposal is far more likely to succeed, and be able to go through the entire SID process without a problem."

This is indicative of a consultative style of management.

Strategic Direction

Investment Philosophy: The Company's investment philosophy was to specialise in selected areas of metal, where it had competitive advantage over its European competitors. The company aimed to become a leading international metal provider with a sturdy technological foundation and exceptional level of service. It invested in restructuring of the company, acquisitions and disposals, and world class processes aimed to improve manufacturing capacity.

Investment Strategy: The directors of METAL plc strategically embarked on selective growth, and their strategy was to dispose of non-profitable assets and focus on new opportunities. This investment strategy was a reflection of the metal industry's business strategy.

Industry Factors

Organisation's Position within the Industry: METAL plc was one of the top three steel producers in the European Union (EU). In 2003 it produced approximately 19 million tonnes of crude steel (about 11% of total EU production).

SID Trends within the Industry: In recent years, consolidations have been taking place in the steel and other metal sector, based on a business strategy "the marriage of operators in low-cost countries with producers in higher margin developed markets" (Financial Times, 2007c:23). This was founded on the then new business model for the sector championed by Indian companies. Businesses would have steel manufacturing assets in proximity to their raw materials and finishing plants in proximity to their final markets (*ibid.*). The industry became increasingly dominated by large players and any company that was considering remaining a player in the steel industry had to look for acquisitions and to be where the markets were. However, companies were cautious about financing those deals, for if Chinese steel producers were to begin exporting en masse, or other shocks were to hit the global steel market, prices could fall.

In the steel industry, governments had recognised that privatisation boosted the economy and provided the funding required for economic reforms, and as a result government ownership had significantly reduced. The focus of companies within the steel industry was on both production and sustainability of corporate image. Management styles within the industry were characterised by a deep understanding, by the steel executives, of the dynamics of the financial markets and the Executives advocated consolidation both during good and bad times (Baan, 2005).

China was the world largest producer of steel and the global steel market was then in the middle of a commodities boom; what the Financial Times (2007a) referred to as a 'global "super cycle"'. This boom was being fuelled by China's craving for natural resources and as reported in the Financial Times (*ibid.*), according to the International Monetary Fund (IMF), China was responsible for 54% of the growth in the steel market from 2002 to 2005. The global steel market had been finely balanced and given China's thirst for steel, it was unlikely that China would emerge as a steel exporter. The growth was accompanied by increase in prices and intense competition among the players and as the Financial Times (2007b) put it "… in dangerous times, one response is to erect a ring of steel…" There had been a lot of consolidation in the global steel sector by way of restructuring and mergers and acquisitions, and the 2007 acquisition of METAL plc by another player in the steel and other metals sector was just one of many. Accordingly, at the time of the study, most of the SIDs undertaken by companies within the industry related to either investing, or divesting to consolidate the company.

Typology of SID

The interviewee based his responses on his experiences in acquisitions of businesses and business assets. These SIDs have been classified, for the purpose of this study, as **asterisk SIDs** (page 150.)

Profile of Participating Managers

The profiles of managers who participated in the study include:

- Level of management:
  - senior level managers – directors and group controller
  - middle level managers – finance managers
- Educational background:
  - various including accounting, finance, engineering, information systems
- Employment record
  - most worked for the company or within the metal sector for more than 21 years

The interviewee was a senior finance manager in the company at the time the interview was conducted. He had been working for the company for more than 21 years and rose through the ranks within the company. He was frequently called upon by the Head Office to be involved in major mergers and acquisitions. He had therefore been involved in a number of SIDs most of them involving mergers and acquisitions: though he, by and large, had a very flexible role within the organisation. All quotes used in the following analysis of this case are from this interviewee.

5.1.2 Nature of SID Process

The SID process within METAL plc was a complex process, and took place at various levels of management. It has been examined in three broad parts: stages of SIDs, hierarchy of managers involved, and group decision support.

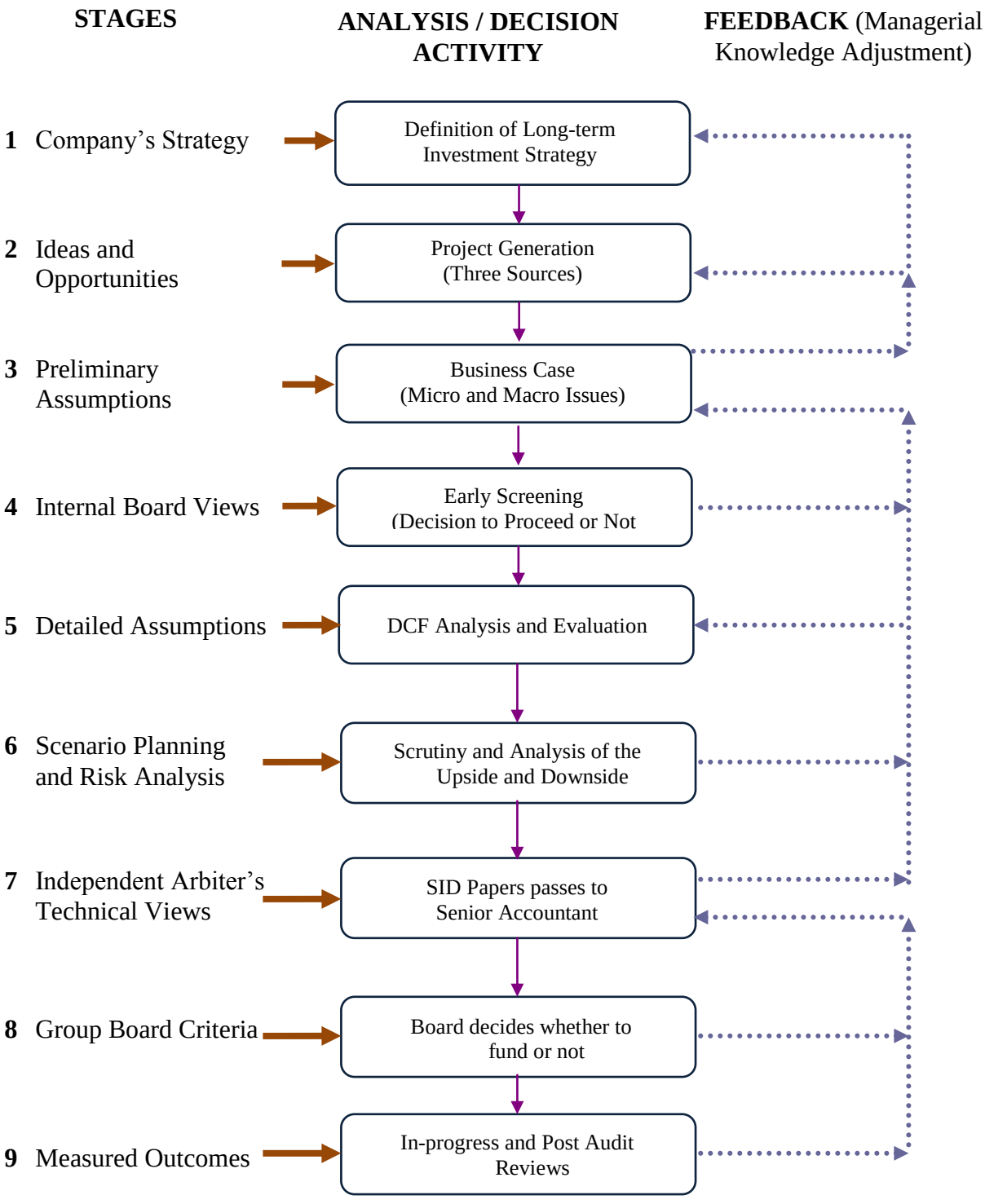
Stages of SIDs

Complexity: The stages of the SID process within METAL plc as evident in the survey and interview data were complex, and in the words of the interviewee:

> "Although we can put it down on a piece of paper as being a simple decision making process, the reality is totally different. There is a lot of meeting behind close doors, a lot of discussions about: Is this reasonable? Are we comfortable with it? Which way do we think the market is moving? What are the competitors doing? Because at the end … we have to come up with something that everybody is comfortable with. The process … does not therefore simply comprise formal milestones along the road, but entails an awful lot of work behind the scene."

Figure 5.2

Strategic Investment Decision Process at METAL plc – Merger and Acquisition



When the stages of SID were compared to those depicted in the strategic investment appraisal process model (**Appendix 1**) developed by Harris (1999), they were found to be similar to Harris', with only a few key differences. The model has been redrawn for the case company (**Figure 5.2**). Harris' model is based on SID on *business development projects* or *infrastructure investments*, within a Logistic company. However, the redrawn model for this case is based on *mergers and acquisitions*. A key difference is that, as depicted in **Figure 5.2**, the process at METAL occurred at Group or Board level, as opposed to Divisional or Business Units level (depicted in Harris' model).

The managers at METAL plc identified nine key stages of the SID process within the company as shown in **Figure 5.2**. The first stage was for the Internal Management Committee (Board) to *define the company's long-term strategy*. The second stage was the *generation of ideas and opportunities* by the Internal Board, which it often did in conjunction with the various financial advisers, e.g. Investment Banks. Investment Banks were a good source of ideas for general mergers and acquisitions or disposals. During the third stage, the Corporate Strategy Department screened the ideas and opportunities for strategic fit and came up with the project's outline or made the *business case* for the projects. The business case was set in conformity with the overall company strategy after the managers had considered both micro issues, e.g. the volume of a product the target company were making; and macro issues, e.g. the business the company was in, where a particular product should be produced (onshore or offshore in countries such as China where it would be cheaper to produce), etc. At this stage the company also predicted the strategic direction of the industry as a whole: the market share information and how the competitors may react to the company's actions.

The fourth stage was for the Internal Board to conduct an *early screening process* to decide on the feasibility of the project (i.e. whether to proceed with the project or not). Once the Internal Board decided that the project was worth investigating further, in the fifth stage, *detailed analysis and evaluation* were conducted. The managers carried out a discounted cash flow (DCF) evaluation and analysis based on robust assumptions set in stage three.

To complement the result of the DCF analysis, the managers performed a '*scenario planning*' or *risk analysis* as the sixth stage of the process, to ensure that the evaluation of the upside and the downside were realistic. The managers believed that the results of the DCF evaluation only represented 25% to 30% of the overall picture. In the seventh stage, the detailed assumptions and the risk analysis information were then passed on to an *independent arbiter*. The company's accountant critically questioned the assumptions to establish whether or not they were reasonable. This was done to reduce the risk of escalating commitment as a result of the proposers' very optimistic views due to 'clouded' judgement as the project progressed.

After the reliability of the figures had been tested, the eighth stage was the *Board Criteria* when the SID papers were presented to the Board. The Internal Board checked that the Internal Rate of Return of the project cleared company's hurdle rate and then prepared a form for the Executive Committee and subsequently the Main Board depending on the project value. The decision was then made whether to fund the project, as well as which financial facilities to use (e.g. new equity, new convertible bonds, new bonds, or temporary financing). In the final stage, the project was implemented during which frequent in progress review took place. *Measured outcomes* from the reviews were relayed to the Board, which then made judgement on how the project should proceed. A final post completion review was conducted at the end of the implementation and its results were fed into future SIDs.

Knowledge Adjustment: Managers in METAL plc constantly adjusted their SID knowledge through a series of feedback and feedforward loops as illustrated in **Figure 5.2**. This knowledge adjustment was very important to the managers and the company and *enhanced* managerial involvement in SID making. It explained why managers' knowledge structure has improved over the years and managers' involvement increased, all which led to the SID process becoming "smoother and better resourced" as described by the interviewee.

Hierarchy of Managers Involved

Selection of Managers Involved: It was identified in **Chapter 4** that multiple managers participate in SID making. In METAL plc a number of managers were consulted and got involved during the SID process. The managers who were involved in the SID process within METAL plc became involved, either because they were members of formal established teams, e.g. Internal Board, Steering Committee, Executive Committee, Main Board, Central Corporate Strategy Department; or because they were professionals e.g. lawyers, accountants, investment bankers and stock brokers. Different people got involved in different roles depending on the specifics of the project.

Profile of Managers Involved in SIDs: The functional titles of the managers within the company who were involved included: Business Development Managers, Finance Managers, Operations Managers, Project Managers, Production Managers, Commercial Managers, Human Resources Managers, Technical Managers, Managing Director, Commercial Director, and Personnel Director. In addition, external people including consultants (i.e. lawyers, accountants, investment bankers, stock brokers, competition analysts, market analysts, and pension advisors); managers from the target company, managers from financing organisations; and managers from government departments were consulted.

The level of involvement and the responsibility of each manager varied from SID to SID. The *sponsor* got involved in all stages except *authorisation*. *Top management* was mostly involved in screening and *approval* or *authorisation*, and occasionally in other stages. Their involvement in other stages depended on the how the SID information was *framed* and *presented*. Commenting on his involvement, the interviewee established that:

> "To a certain extent it actually depend[ed] on whether: (1) the strategy [was] right and people at most senior level [were] happy with the strategy, and (2) whether the people at the most senior level [were] actually happy that the project [had] been properly and comprehensively evaluated, all the risk assessed etc. In one project, I was very heavily involved as did our Corporate Strategy Department. In another project, of almost the same size, we were hardly involved at all because the sponsors made a good job of putting it together."

Accordingly, the role changed from project to project and specialists were consulted because of their experience and to act as insurance, for wrong advice can lead to litigation and specialists tend to be very cautious. According to the interviewee, consulting investment bankers was critical during an acquisition project.

> "You get lots of advice off the investment bankers. There are a lot of very intelligent people in investment banking. The only problem is that investment bankers tend to make a lot of fees out of these deals, and what drives their advice is the fact that they can get the fees. Investment bankers always want to complete the deal, because no deal no fees. So you have got to be very circumspect about whose advice you take."

METAL plc referred any part of the SID process, which could benefit from the expert knowledge of the specialists, to consultants. Specialists were therefore frequently involved in the SID process of the company, and their level of involvement varied from project to project. The size of the project was the most important factor in deciding whether the specialists should be consulted. The consultants that were regularly used by the company include: *investment bankers*, *accountants*, *stock brokers* and *lawyers*.

Group Decision Support

Software: METAL plc did not have a specific decision support system, the managers used Excel Spreadsheets.

Function: The managers used Excel spreadsheets, to appraise the SIDs and conduct sensitivity analysis and scenario planning. Where appropriate the managers constructed decision trees and conducted critical path analysis to appraise the SIDs. They wrote their own investment evaluation models using the Excel spreadsheets, and found it unnecessary to have specific "proprietary" decision support software for capital expenditure evaluation. The use of Excel spreadsheets, allowed managers to formulate models for specific instances that required them. According to the interviewee, getting the project's "underlying assumptions" right, was more important than having proprietary decision support software. The company recognised that the inputs could be so uncertain that they led to inaccurate results, it therefore emphasised getting the underlying assumptions right. It allowed a ±3%

margin of error. METAL plc advocated simple models and managers found such simple models were very helpful in supporting managerial decisions during SIDs. As the interviewee put it:

> "All we require is a model simple enough to understand. Such models are actually invaluable. There is need to balance the effort put into building the model with that put in ensuring that it gives better understanding of what the project is about. The models are very useful but they are not technically difficult to build. All that a manager requires to do is to spend some time on the assumptions and the rest would just follow."

In summary, according to the respondents and the interviewee, the SID process within METAL plc had become smoother over time because it was better resourced. The process was not simple and involved a number of internal managers and external people. It also involved a lot of networking and behind the scene activities. The SID process could not therefore be *generalised* by its very nature.

5.1.3 Managerial Judgement

Managers at METAL plc exercised managerial judgement at the various stages of the SID process discussed above. Their judgements were influenced to some extent by a wide range of individuals and professionals i.e. the decision was not made in isolation. For example, when making judgement on the source of funds, the *Board* sought the *bankers'* permission, particularly where the target company was not an investment grade. There were also various psychological influences. In addition, the managers reacted in a variety of ways to SID information, were involved in team and group processes, and participated in assessment of risk and return.

Psychological Influences on Judgement

Knowledge and Experience: Various aspects of human *knowledge* and *experience* influenced the SID process. The findings indicate that knowledge structure of the decision maker in terms of: knowledge of strategy formulation; managerial experience; and professional background were the most important in influencing mergers and acquisitions. Other influences included: knowledge of competitors and inner workings within the company.

Managers at METAL plc considered the decision maker's knowledge and experience very important during the SID process. *Knowledge of strategy formulation in the company* and the current strategy the company was pursuing were the most important in influencing the SID. For example the interviewee commented:

> "Literally before we make any major strategic investment decision, we work out what our strategy is. We work out the long term strategy in relation to the position of the whole business. The overall strategy will then very heavily influence subsequent decisions that we make, e.g. in the case of an acquisition, how much we will be willing to pay for the target company. For anything strategic, i.e. a must have, we will be prepared to pay high multiple than if it was something with a number of alternatives. Therefore, before we get into these decisions, we … set our strategy. Strategy is at the root of it all. It is only after we have set the strategy that we start looking at evaluation of project information. Evaluation of project data is less important than setting the strategy."

Strategy formulation within METAL plc was the first stage of the SID process discussed earlier.

Managerial experience was also considered extremely important in influencing the SID, and according to the interviewee on-the-job experience *vis-à-vis professional qualifications* was particularly important:

> "The professional qualifications, for example in Accounting and Finance, gave me a broad background in a number of aspects of Finance. But on the job, I touched on lots of things. I learnt a lot more when I actually got into the job. I went straight into the industry when I left the University; I didn't go into Chartered Accountancy Profession. The qualification gave me that basic grounding, which I then built on when I got wider and wider experience; it also gave me the logic behind certain things. It certainly didn't give me the depth that ultimately I required but it did give me flexibility going forward. There are a number of the things that I have come across only in the last three or four years, e.g. bonds, convertibles and revolving credit facilities (but then I have only been in Corporate Finance the last three or four years). I hadn't really come across them before, so the new specialism that I had to learn. Nevertheless, the professional qualification gave me a broad grounding that I could then use to specialise. It is very useful from that point of view."

Managerial experience was a major factor in deciding who got involved in SIDs. For example the interviewee was heavily involved in SID making because he had been in the industry for more than 30 years and had more than 20 years managerial experience. The number of years of experience within the industry was a key factor in deciding who got involved and at what level.

Knowledge of competitors also influenced the SID to a great extent. The managers were expected to have an understanding of how the competitors within the industry would react to their decisions. According to the interviewee, knowledge of competitors came in handy during the evaluation stage of the SID and when the manager had to look beyond the financial analysis at questions such as:

- What are the competitors going to do, is it a new widget that you are going to produce?
- Is it actually going to steal the market share from somebody else?
- Will the thing actually work anyway?
- What is the market exchange rate going to be?
- What is the management of the target company like?
- What are the potential competitors' reactions?

In addition, METAL plc also encouraged managers to obtain an understanding of the *workings of the industry* and the *inner workings of METAL plc*. In respect of merger and acquisition, *knowledge of the management of the target company* was invaluable. It:

> "… is not something that we can be objective about, be mathematical about; but if we buy the right management with the company, we stand far, far better chance of making a success than buying the company that has got bad management. The other thing is we can actually deliberately go out with a strategy to buy a company with bad management so that we can put in our own good management. This is a strategy of a well known player in the industry who owns a big steel company. He buys steel companies abroad and parachutes in the management, which is actually a strategy. But all these things are not done in a mathematically analysable way."

Decision maker's knowledge structure was therefore a key factor in managerial judgement and involvement in SID. The professional knowledge, managerial experience, understanding of competitors, familiarity with industry factors and inner workings of the company, and knowledge of the management of the target company by a manager enhanced his judgement and involvement in merger and acquisition SIDs. Lack of such knowledge and experience seemed to inhibit managerial judgement and involvement, as more experienced managers often dominated the managerial judgement, which reduced the involvement of junior managers. These strands of knowledge and experience are acquired through formal education and employment in the steel and other metal sector.

Anchoring and Adjustment: In exercising their judgement during the SID, managers within METAL plc *compared and contrasted new project opportunities with similar projects* they were previously involved in. This was considerably important in influencing managerial judgement of the SID: managers pegged their judgement on past similar projects and adjusted the information accordingly (i.e. in light of new primary and recent information that became available to them). In contrast, managers anchored their judgement on *informal discussions and interactions with managers involved in the SID* only to a limited degree.

The anchoring of judgement on *top management's views* was mixed and could be explained by the relative position of managers in the hierarchy of organisational structure. While middle level managers, to a great extent, anchored their managerial opinions on top management's views, senior level managers' opinions only depended on their views to a limited extent.

In addition managers pegged their judgement on the *knowledge of the industry* and *macro economic forces* in the global economy from time to tome. Examples of the macro economic factors that managers considered were given by the interviewee in the following quote:

> "What do we expect to happen to raw material prices? In the steel industry, for example, just last month, iron ore went up by 70%. Then, we look at things like: where do our supplies come from? Inflation, what is the pricing power; what is it upstream? In the steel industry, about 80% of the ocean borne iron ore trade is in the hands of three companies, so it is very concentrated. The three players have got pricing power. All these things influence our judgement. If we then look downstream, one of the biggest users of steel is the car industry, and about 65% of the world car industry is in the hands of the five big players: Toyota, GM, Ford, VW, and Peugeot. Therefore, it is very concentrated downstream, it is very concentrated upstream; we are in the middle."

Availability: Project information was made available and easily accessible to managers involved in the SID process. They all had access to *financial projections*.

Reaction to SID Information

Requirement for Presentation (Structuring) of SID Information: The Company required managers to present the *project's information* in line with the overall *company*

strategy. Where managers did this, the project was considered to have been properly and comprehensively evaluated and there was *less scrutiny* at *senior level*. The company also required the information presented to include a detail assessment of risk associated with the project and expected return as indicated by the project's IRR and the impact of the project. They required a well rounded business case covering all aspects of the project. For example for one project with a value of £100 million, the local division made a very good business case (they evaluated all the alternatives and the impact of the project). The business case was well rounded and covered different aspects of the project, and when it was presented to the Head Office management for approval, it sailed through. Head Office management were comfortable with the evaluations presented and no additional scrutiny was required. On the contrary, in another project of a similar size additional scrutiny was required because the managers did not provide a comprehensive evaluation.

The company required a lot of information to be made available by the sponsor, as a part of a comprehensive project evaluation. The more complete the evaluation the more comfortable, right through the system, the top managers were. In the words of the interviewee: "if people get the impression that somebody has not turned all stones over and done a wide ranging assessment, then it is not going to get a very good reception. If top managers are uncomfortable the way it has been done they will not authorise spending of the money".

Information Emphasised: The top management of METAL plc emphasised '*primacy*' of information. When *assumptions* were *formulated* during the SID process and the project was screened or scrutinised at the various stages of SID *strategic fit* was emphasised. '*Recency*' of information was also emphasised and played an important role in changing the managers' views of the project. Receipt of real–time information on the change in project definition, technological issues, logistical issues, the impact of financial projections, management capabilities, and other financial data; led managers to change their views of the project.

Team and Group Processes

Group Decisions: Merger and acquisition SIDs in METAL plc involved group decision. A number of skills and attributes that decision makers possessed were found to be crucial in group decision. *Managers with different skills* were considered not important to gaining consensus. This was probably because merger and acquisition SID process involved a lot of consultations, with external specialists in various areas; i.e. the necessary skills were effectively outsourced. Indeed the interviewee noted that it was not the inclusion of managers with *different skills* that was important rather, the *on-the-job experience* of the managers. He maintained that the different skills were outsourced from *specialists* for mainly two reasons: firstly, they are experts in their respective fields; secondly, they might be used as independent arbiter. Similarly, *negotiating skills* were unimportant to gaining consensus during the SID process. According to the interviewee,

> "Because, merger or acquisition is a major strategic project, it may be that the time is not right now but long-term we gradually build up relationships with other companies. And if you are talking about strategic investment decisions, you never get full agreement from everybody either."

In relation to *respect for superiors' opinions* (Moses factor), it was not important to gaining consensus during the SID process. Moses factor did not apply to during SID process in METAL plc. This enhanced managerial involvement in SID, since it was not an established practice for managers to always agree with the superior. They had the freedom to come up with their own views and take risk as necessary. In addition, the use of *brainstorming* during the group decision process at METAL plc was minimal. Merger and acquisition SID appeared not to lend itself to brainstorming, the required information was available from consultants.

Much as *personal agendas* would be expected to be problematic during group decision. In METAL plc managers had mixed views on its problematic nature. Some of the managers found it not problematic at all but others found them problematic. The interviewee agreed that personal agendas frequently came up during the SID process.

> "We have got a number of examples of personal agendas. For example, recently a division decided it wanted a solution for a project worth over £100 million at any costs for personal reasons of the sponsor."

Personal agendas negatively impacted on group decision and to counter their impact on the process, managerial judgement and involvement METAL plc used independent consultants. For instance in the case quoted above, the interviewee said; Head Office managers had to bring in an independent accountant, who pointed out what was wrong with the project and that the divisional managers were getting carried away because of some problem they wanted solved by all means.

> "We deal with personal agendas, by always getting someone from outside the company, to stand above it and just look at … usually the mathematics of the project."

Sociality of managers was also considered not crucial to group decision. For mergers and acquisitions, *managers who are socially compatible* were not important at all to gaining consensus. This does not support the survey findings reported in **Chapter 4**. Sociable managers would be expected to enhance managerial involvement in SID while unsocial managers might inhibit such involvement. However, there was no evidence that paying no attention to social compatibility of managers involved in the SID process affected the SID process in any way.

Group Socio-political Process: SID projects in METAL plc originated from three sources: the Board, or the relevant Division, or Investment Bankers. The company required and encouraged *individual managers to champion and be responsible for the SID*. However as the interviewee noted, this requirement was at times fulfilled by external parties.

> "... We, as most FTSE 100 or 250 companies, have relationships with a number of investment banks, and it is the business of those investment banks, in terms of general mergers and acquisitions or disposals, to bring along proposals to us. Therefore, identifying ideas and opportunities can either come: down from the Board, up from the relevant Divisions, or from outside the company, where it has been identified by investment banks."

Although managers at METAL plc had some coalition of interests they rarely *formed temporary alliances or subgroups* specifically for the purpose of the SID. When asked why this was the case, the interviewee said:

> "I think it is because the SID process is becoming smoother since we are better resourced. Though we can never take the personality out of individual decision making, and there are some personalities, here in the company, who like to play their cards very close to the chest. They don't expose their particular project to general scrutiny until the last moment, and you can never stop them doing that. Other people are more open: they come round and have a chat; they will try and take people along with them; so if people do have a point of view, they can get the point of view out in the open earlier. In fact there is a lot of networking … those who are sensible do a lot of networking in advance to make sure that they understand other people's concerns about the project and they address those concerns."

Another explanation as to why it was difficult for people to form temporary alliances was that merger and acquisition process is complex.

Even though managers seldom formed temporary alliances or subgroups during the SID process in METAL, a lot of discussions of the SID were carried out behind the scenes to avoid managers with contrary views "throwing a spanner in the works ... because they don't necessarily agree with the proposal". This reduced the risk of bringing the whole process to a halt because a senior manager decided to go away and think about the proposal for a couple of weeks. The interviewee commented that:

> "Because we want the project approval process to go on smoothly, we make sure that anybody that may have a contrary view is dealt with before it gets to the final decision making process. Our managers tend to view things independently and if they don't like something then they will say it. Particularly when we are dealing with big financial decisions, then managers are always a bit edgy about whether it is the right thing to go ahead with. And we strive to avoid someone questioning some of the bases during the final decision stage. So the solution is to do all the behind the scene works because it is too dangerous not to, and a lot of problems get ironed out behind the scenes. As a result we end up with a far better proposal that looks far more likely to succeed, and go through the entire SID process without a problem."

Assessment of Risk and Return

In METAL plc, evaluation of return took place during stage 5 (detailed assumptions i.e. DCF analysis and evaluation). The SID process also included *risk analysis* and *scenario planning*. Risk analysis was about whether the 'assumptions' were realistic and 'what ifs', and it was considered a very important exercise. The company conducted risk analysis and scenario planning because the steel and other metal sector was so volatile that figures resulting from evaluation of the project could be very wrong. According to the interviewee, in the steel industry:

> "The outcome is in getting a realistic evaluation of the upside and the downside of a particular project."

Risk Evaluation Techniques: The Company's *risk analysis methods* included:

- the use of intuition where applicable;
- scrutiny of the basic assumptions (commercial and ex rates); and
- track record of management of the target company.

The managers used *scrutiny of the basic assumptions* (commercial and ex rates) and *track record of the manager* championing the SID (used by top management of the company to assess perceived competence of the project sponsors) as the main methods of assessing risk associated with a project. Where applicable, they also used intuition. The methods were often used in combination (i.e. they complemented each other), which enhanced the participation of managers with various skills in the process.

The company looked at the track record of those who championed the SID (in terms of their career progression, past successful SIDs sponsored by them, and experience). It also looked at whether the champions had made realistic assumptions in the past. This was a very important aspect of assessment of the risk associated with the project.

> "The track record of the champion(s) is very important, because anybody can put together … a cohesive case to invest money we always look at the track record of the sponsors of the project. We consider issues such as: have they had a successful business career; have they put projects forward previously that have been successful; and so on? To us the track record of the individuals sponsoring the project actually counts far more than all of the figures resulting from the evaluation. The second thing is then to consider the experience of the people that will take the independent view of the project."

However, the risk assessment process was not specific to a project; it also covered other factors, such as trends in the world economy. For example it considered what was happening with the Chinese market, the movement in the Sterling rates against the Euro, etc. It also covered 'Corporate Risk Analysis', which was not specific to SIDs. The interviewee commented that:

> "We conduct a corporate risk analysis, which include the identification of the things we have got to avoid. For instance we would consider the possibility that the market would lose confidence in the company because of failure to complete acquisitions or disposals deals. We nearly merged … with a[nother company] … in 2002 and failure to complete that deal actually meant that the Stock Market lost confidence in the company."

Techniques for Evaluation of Expected Returns: The techniques that managers in METAL plc used for evaluating return expected from a project included:

- evaluation of expected outcomes (based on probability or likelihood of alternative outcomes); and
- discounted cash flow analysis (NPV and IRR).

The company conducted sensitivity analyses (e.g. how susceptible the project return was to exchange rates; how susceptible to the reactions of probable competitors; etc) and scenario planning to determine the probable impact of risk identified during risk assessment on the expected return. However, it was ultimately the responsibility of the Executive Committee and the Board to use their experience to determine whether the returns expected from the project outweighed the risk involved.

Industry Rule of Thumb: The Company did not use industry rule of thumb to assess the risk associated with the project. However, it relied on the strategic factors in the industry, when formulating strategies for the project. There was no specific guide about the industry to the managers, which could have inhibited their judgement and involvement in the SID process; though the company required managers involved in the process to have knowledge of the industry.

Risk Profile of Past Projects: Managers often compared risk associated with a project with risk profile of past projects. To facilitate this process, there was frequent comprehensive risk assessment process within the company (conducted by the Audit Committee and the Board) every quarter. The risk identified during this process went to the Board which compiled a schedule of the top 30 risk that the company faced. The risk

analysis schedules came from the *business units*, were fed to the *divisions,* and the divisions fed them through to the *group level*. The company's *Group Reporting and Control Department* therefore maintained *high level* registers and low *level registers* of risk.

> "The Divisions are responsible for identifying the project risk but the Internal Executive Committee and the Board also scrutinise the risk. Usually the larger the project, the bigger the element of risk; and the bigger the scrutiny it will come under. It is actually a collective responsibility."

Comparison with risk profile of past projects therefore took place at various levels. In METAL plc certain risk were perceived to *be group level risk*, for example, the risk of breaking some of the banking covenants in the company's new revolving credit facility, the risk of the Chinese becoming an exporter of steel, etc. These were scrutinised and compared with risk profile of past project by the Board for each project.

In conclusion, assessment of risk associated with a project and evaluation of return were very important to the company. A number of assessment or evaluation techniques were used during the SID process; and the company always compared risk that was identified with profile of past projects. Sensitivity analyses and scenario planning were conducted to incorporate the risk identified into the evaluation of returns. These required various managers (with different skills) to get involved and therefore seemed to enhance their judgement and involvement in the SID process; although the lack use of industry rule of thumb might have inhibited managerial judgement and involvement.

5.1.4 Case Summary

The findings from METAL plc based on the three-part analytic framework in **Figure 5.1** is summarised in Tables **5.2** and **5.3**. **Table 5.2** summarises the contextual factors that were operational at the company and the nature of SID process within that context.

Table 5.3 summarises the factors of managerial involvement in SID. The grouping of the factors follows the numbering of the categories in the template for case-by-case analysis

(**Appendix 5**). As the table shows, the factors of managerial involvement were classified as *enhancers/enablers* and *inhibitors*. This classification was based on the researcher's interpretation of the evidence gathered during the study.

Table 5.2 – Summary of findings (contextual factors and SID process)

Contextual Factors	SID Process

• Operating context
  ○ Apollonian organisational culture
  ○ Large divisionalised group of companies
  ○ Consultative management style
• Strategic direction
  ○ Specialise in selected areas where the company had competitive advantage
  ○ Selective growth strategy
• Industry factors
  ○ One of top three steel producers in the EU
  ○ Consolidations within the industry – manufacturing in proximity to raw materials, finishing plants in proximity to final markets
  ○ Privatisations
  ○ Global super cycle
• Typology of SIDs
  ○ Asterisk SID – mergers and acquisitions
• Profile of managers
  ○ Decision makers' characteristics
  – senior level managers – directors and group controller
  – middle level managers – finance managers
  – various educational background including accounting, finance, engineering, information systems
  – most worked for the company or within the metal sector for more than 21 years
	• SID stages
	  ○ Complex, bureaucratic, rule-bound and well documented process
	  – group or Board level process
	  – nine key stages
	  ○ Knowledge adjustment
	  – Series of feedback and feed forward loops
	• Hierarchy of managers involved
	  ○ Formal SID teams
	  ○ Selection of managers involved
	  – multiple managers
	  – involved by virtue of being:
	  • members of formal established teams
	  • professionals
	  ○ Profile of managers involved
	  – various functional titles
	  – experience (both managerial and industry)
	  – expert knowledge e.g. investment banking
	• Group decision support
	  ○ Software – Microsoft Excel
	  ○ Function
	  – appraising SIDs
	  – conducting sensitivity analysis and scenario planning
	  – constructing financial models

For example, with regard to psychological influences on judgement – knowledge and experience, the interviewee while commenting on the techniques used to assess the risk associated with a project said:

> "The track record of the champion(s) is very important ... We consider issues such as: **have they had a successful business career**; **have they put projects forward previously that have been successful**; and so on? ... The second thing is then to consider **the experience** of the people that will take the independent view of the project."

Also when commenting on his high level of involvement in the SID process he noted:

> It is because I **have been around a long time** … I have been in the steel industry for about 30 years, and I guess I am seen as: (a) **having experience**, (b) having a bit of common sense, and (c) being pretty independent; as simple as that really, probably because there is nobody else [with such level of experience].

Table 5.3 – Summary of findings (nature of managerial involvement)

Managerial Judgement (Nature of Involvement)	
Enhancers/Enablers	**Inhibitors**
• Psychological influences on judgement (3.1)	• Psychological influences on judgement
○ Knowledge and Experience (3.1.1)	○ Knowledge and Experience
– knowledge of industry/competition, inner workings and strategy formulation	– involvement of junior managers restricted by domineering behaviour of senior, more experienced, managers
– managerial, professional and technical experience (3.1.2)	
– considerable use of brainstorming	
○ Anchoring and Adjustment	○ Anchoring and Adjustment
– comparison with past	– no information for benchmarking novel projects
– informal discussions and interactions (3.1.3)	– reliance on top managers' views may constrain managerial judgement
○ Availability	○ Availability
– access to SID information	– lack of access to SID information
○ Other	
– external/independence and cynicism	
– wide consultation	
• Reaction to SID information (3.2)	• Reaction to SID information
○ Requirement for presentation (structuring) of SID information (3.2.1)	○ Requirement for presentation (structuring) of SID information
– manager's use of own models	– comprehensive evaluations quickened the SID process
– data to show strategic fit	
○ Information emphasized (3.2.2)	○ Information emphasized
– real-time information	– high level of screening and scrutiny
• Team and Group Processes (3.3)	• Team and Group Processes
○ Group Decisions (3.3.1)	○ Group Decisions
– diversity of skills within the decision making team	– managers who are socially compatible
	– managers who respect superiors' views
○ Group Socio-political Process (3.3.2)	○ Group Socio-political Process
– frequent encounter of personal agendas	– no temporary alliances formed
– personal agenda found problematic	
• Assessment of Risk and Return (3.4)	• Assessment of Risk and Return
○ Risk evaluation techniques (3.4.1)	○ Risk evaluation techniques
– complementary use of evaluation techniques	– evaluation of corporate risk only at Head Office
○ Techniques for Evaluation of Expected Returns (3.4.2)	○ Techniques for Evaluation of Expected Returns
– use of scenario planning and sensitivity analysis requires various managers' involvement	– ultimate responsibility of comparing risk and return lies with Executive Committee and Board, who relies on experience
○ Industry Rule of Thumb (3.4.3)	○ Industry Rule of Thumb
– industry factors provide guidance to managers	– consideration of industry factors requires industry knowledge and experience
	– absence of rule of thumb means no guidance for less experienced managers
○ Risk Profile of Past Projects (3.4.4)	○ Risk Profile of Past Projects
– availability of risk analysis schedules	– group level risk schedules only available to Head Office managers

The researcher interpreted these to mean, if the manager posses the necessary managerial experience, their managerial judgement and involvement in SID would be encouraged (*enhanced/enabled*). Often experienced managers were senior managers, and in an Apollonian culture, although rule based, at higher echelons the organisation is Zeus-cum-Athena like with the senior managers ignoring among themselves rules set for others. This would mean that the managerial judgement and involvement of inexperienced or junior managers are covertly not promoted. They may feel de-motivated (*inhibited*) from participating actively in the SID process. Another example is assessment of risk and return – risk evaluation techniques and techniques for evaluation of returns. According to the interviewee the company uses various techniques namely: intuition, track record of the champion, scrutiny of the basic assumptions and comparison with risk profiles of similar past project to ensure that the analysis is comprehensive. Similarly managers used discounted cash flow analysis and evaluation of expected outcomes based on probability of alternative outcomes to evaluate expected return.

In addition risk was incorporated into the return evaluation through sensitivity analysis and scenario planning. These were undertaken to provide comprehensive evaluation of the project, which would then be presented to top management. The interviewee commented:

> In one project, I was very heavily involved as did our Corporate Strategy Department. In another project, of almost the same size, we were hardly involved at all because **the sponsors made a good job of putting it together**."

The researcher interpreted this to mean that the use of complementary techniques for assessment of risk ensured comprehensive evaluation, which facilitated managerial judgement at senior level. In contrast, assessment of corporate risk only took place at Head Office level, which meant involvement in this process was restricted to Head Office managers.

The classification of all the factors contained in **Table 5.3** into enhancers/enablers and inhibitors followed this line of analysis.

5.2 Case II – UTILITY plc

UTILITY plc was a UK division of an international multi-utility group of companies, which could be classified as 'large' under the Companies Act 1985 (as amended) company classification. The Group was one of the largest industrial conglomerates with four core businesses in the fields of *electricity*, *gas*, *water*, and *environmental services*. It was a leading player in the UK, Germany, Eastern Europe, and the USA. UTILITY plc was one of the companies within the Group that operated in the UK, and the data that is analysed in this section were from the responses to the analytic survey questionnaire, interview transcripts, internal company documents, information contained in the company's financial statements, and other publicly available information on the company in the media.

5.2.1 Contextual Factors

UTILITY plc was one of the largest UK energy companies that supplied (generated and sold) electricity and gas. Its organisational context closely reflected the organisational context of the parent company. The company's parent was restructured in 2006 and divested its water businesses to focus more on the energy business. At the time of the interviews, the Group's shares were listed on the London Stock Exchange, and the Frankfurt Stock Exchange. Its shareholding was distributed across the UK, Europe, the USA and Canada.

Operating Context

Organisational Culture: UTILITY plc was divided into departments that carry out various *functions*. Clear functions and divisions are facets of the Apollonian culture. 'Approval Body' within the Group hierarchy of delegation of authority responsible for approval of the project was decided for each project. Within the company, a number of departments got involved in the preparation of the scheme paper, and the 'Group Investment Directive' required all the relevant departments to be involved. Functional experts liaised with Corporate Finance and Planning, Corporate Risk Control and Corporate Development and

Strategy. This cross-functional liaison is an aspect of the Apollonian culture. The company had a *Group Investment Directive*, a *Group Investment Framework* and a *template* for presentation of project information, which was developed by the Executive Support Group of the company (a department of the Holding Company). It also ensured that each project was implemented in line with the *budget* prepared for it. Sets of rules and procedures are features of the Apollonian culture. The company's organisational culture was therefore *Apollonian*.

Business Design: UTILITY plc had several fully owned subsidiaries, each with an Electricity Supply License to supply electricity and gas from a fuel mix that comprised 46% coal, 35% natural gas, 13% nuclear, 3% renewables and 3% others. In addition to supplying electricity and gas, the company also provided environmental services. UTILITY plc operated an integrated business model, owned a portfolio of low-cost generation assets and had been searching for viable renewable power sources. It had eight energy electricity generation stations and 16 cogeneration (Combined Heat and Power (CHP)) plants in the UK and the Republic of Ireland. In 2006 it supplied 300,000 sites and also served 20,000 industrial and commercial customers with more than 10,000 sites providing electricity and gas. It also had a meter and data system (MDS) business that delivered services to various customers all over the UK.

Management Style: UTILITY's organisational structure was such that top management showed confidence in the managers, *delegating* some *authority* to them. According to one of the managers:

> "All authority and responsibility within the company originates from the Board of Directors. The Board delegates the responsibility for managing the day-to-day activities of the company to the company's Leadership Team and the Audit Committee."

Showing confidence in staff, encouraging them to participate in decision making and delegating some authority to them is an aspect of the *consultative* management style. Top management's views were sought by middle level managers as and when required, for example as MANAGER 1 put it:

> "These are sought at the time of evaluation and when the scheme paper is being prepared. You use your contacts and use senior management to bounce ideas off them, test the water and test the whole process to see whether you are going in the right direction. For example at the moment, I am looking at a proposal to buy some buildings. My first discussions were with the Director Technology Services and General Manager about: Is it in our Business Plan; is it in our strategy to go forward? How do we structure it? What are we going to do with the buildings, how are we going to make the business case? We have structured an idea to endorse and shall be talking to the Business Development people to tell them how this is going to fit into our business."

Top managers therefore gave managers involved in SIDs *guidance with loose reign*, a facet of consultative management style. Managers also made decision in consultation with other managers and according to MANAGER 1:

> "We do a lot of stakeholder management before we get to present the project proposal. So we might be in talking with our senior managers to extract a view from them whether there is going to be an issue regarding it or whether it is going to a sign on. To ensure easy progression through the company, we get a lot of managers to support the project."

The dominant management style in UTILITY plc was therefore the *consultative* style.

Strategic Direction

Investment Philosophy: In line with the parent's goal, the company's investment philosophy was to invest in *innovations* and *growth*. The company's strategic goal was to secure a good market position and take advantage of opportunities for growth within the energy sector, guided by five strategic principles, *viz.* to:

- concentrate activities predominantly on core competencies of generation and supply of electricity and gas;
- focus on the company's core UK market;
- occupy leading market position within the UK,
- strive for success in all the elements of value chain applying an integrated business model (i.e. supply customers with electricity and gas from the same source); and
- continuously increase the value of the company through investment in innovations and organic growth.

UTILITY focused on meeting the then UK needs to build substantial amounts of new low carbon generating capacity. Its philosophy was keen to take advantage of every possible initiative to save energy and to use it as efficiently as possible.

Investment Strategy: UTILITY's strategy flowed from the Group's overall multi-utility strategy. Embedded in its business practice were the principles of sustainable development. The company's strategic direction also depended on the EU and UK legislation, as MANAGER I noted:

> "We have pressure from European legislation and from UK legislation where we have to revisit the generating market in respect to carbon dioxide (CO_2) emissions and general environmental issues. So the way the company tends to do it is to be driven by market needs and government legislation that force us down certain routes and to our generating portfolio. So if we were to make strategic investment decision, we would be looking at: what the market requirements are, what the legislation is pushing us to do, what the age of the plant is and what our customer base is." (*MANAGER I*)

UTILITY was a leader in the search for renewable sources of energy and with more than 15 years experience in CHP, pursued an *organic growth* strategy. The company earmarked €1.2 billion for the construction of a 'combined-cycle gas turbine' power plant either in Nottinghamshire or West Wales, which was scheduled to start in 2007. The power plant, with a maximum generation of 2,000 MW, was to begin operation in 2009. In addition, one of UTILITY plc's subsidiaries planned to invest approximately €150 million in three new wind farms with a combined installed capacity of 100 MW scheduled to come on-stream in 2008. UTILITY plc was also exploring the use of CO_2-free coal power plant technology. It was conducting a feasibility study on the possibility of separating carbon dioxide from flue gas in one of its 1,000 MW hard coal-fired power plant.

Industry Factors

Organisation's Position within the Industry: UTILITY was one of the largest UK companies that supplied electricity and gas. In 2005, it had a generating capacity of 8,000 MW from coal, oil and gas fired stations, and wind, hydro and cogeneration plants. It was supplying approximately six million customers at the end of 2006.

SID Trends within the Industry: How to move to a low carbon economy, at the same time maintaining affordable and secure sources of energy was the key challenge facing the utility sector. Trends in the energy sector closely followed the trends in economic growth and changes in the environment. For example from 2003 and 2006, the global economy

witnessed an economic upturn, and in 2006 global economic growth was estimated at 5.4% (International Monetary Fund, 2007). Some of the momentum of this economic upturn was however lost in 2007 following the credit crunch that started in the US market. In 2006, the UK economy posted 2.7% growth (*ibid.*), and the cyclical upswing benefited from high capacity utilisation and good corporate earnings, with investment as the main driver (Department for Business Enterprise and Regulatory Reform, 2007a). In addition, the mild weather in the last quarter of 2006 led to reduction in the consumption of gas and electricity by households. Household energy consumption largely depends on temperatures (Department for Business Enterprise and Regulatory Reform, 2007b).

Within the energy sector a lot of emphasis was being put on reduction in CO_2 emissions. CO_2 emissions trading were widespread, though the market for CO_2 emissions allowances experienced fluctuations in prices. The fluctuations in the price of CO_2 certificates reflected developments in the energy sector. For example, the price of CO_2 certificates for 2007 reached a record level of €31 per metric ton of CO_2, due to increasing price of power plant gas, leading UK electricity generator to switch their electricity production to hard coal power plants, which have higher emissions than gas-fired facilities.

In the energy sector, the political environment was another key factor. In 2006, on the political agenda in Brussels was the regulation of the energy market and the main debate was the European CO_2 trading system for 2008 to 2012. This impacted on investment decisions within the sector. In the UK, the conditions governing emissions allocations for the energy sector after 2008 were expected to become tighter; while the EU Commission was in favour of energy companies unbundling ownership of grid operations from other activities, a move that was expected to increase competition. Companies operating within the energy sector within the EU would be required to comply with the European Commission's legal unbundling requirement. However, UTILITY plc was not affected by this regulation since it had transferred its electricity and gas transmission and distribution grids to legally autonomous companies and separated them from the supply business as early as 2003.

Typology of SID

The interviewees based their responses on experiences in new market and new site development. In this study, these SIDs have been classified as **development SIDs** (page 150).

Profile of Participating Managers

The profile of managers who participated in the study included:

- Level of management:
  - middle level managers – managers and head of programme
- Educational background:
  - Engineering and management
- Employment record
  - most worked for the company or within the energy sector for more than 21 years

The interviewees were Gas Turbine Service Manager (MANAGER I) and Head of Programme Implementation (Manager II) respectively. Both the managers had worked for the company and its predecessors for more than 21 years and rose through the ranks within the company to their current positions. They had occupied these functional positions for more than five years and, jointly, been involved in numerous SIDs, mainly involving: new product development, new market development, new site or site development (operating facilities e.g. new location, relocation, expansion); and new technology and energy infrastructure (e.g. CO_2 reducing wind turbines and farms, and replacement of gas-fired power stations). The interviewees, at various times, were involved in all the stages of SID, and for the SIDs that they based their responses on; they were the sponsors of the projects.

5.2.2 Nature of SID Process

The SID process within UTILITY plc was a formalised process with distinct stages and procedural guidelines for managers. The Holding company had a 'Group Investment Directive', which guided the divisions on how to proceed with SIDs, and any SID

undertaken by a division was required to follow. To make the Directive functional the parent company produced a 'Group Investment Framework' with distinct stages, which applied to different types of investments, though in different ways. Within the framework, the company categorised strategic investments into five main groups:

- Investment in fixed assets e.g. plant, machinery, property, licenses and franchises;
- Financial investments e.g. acquisitions, mergers and joint ventures;
- Divestments, disposals and closers;
- Material contracts e.g. leasing agreements, management contracts, and commodity or tolling agreement; and
- Other capital expenditure e.g. major repair and refurbishment, and branding.

The process involved participation of managers at various levels of management and together with the 'Group Investment Framework' the parent company provided Principal Delegations of Authority. The SID process at UTILITY plc has been examined under: stages of SIDs, hierarchy of managers involved, and group decision support.

Stages of SIDS

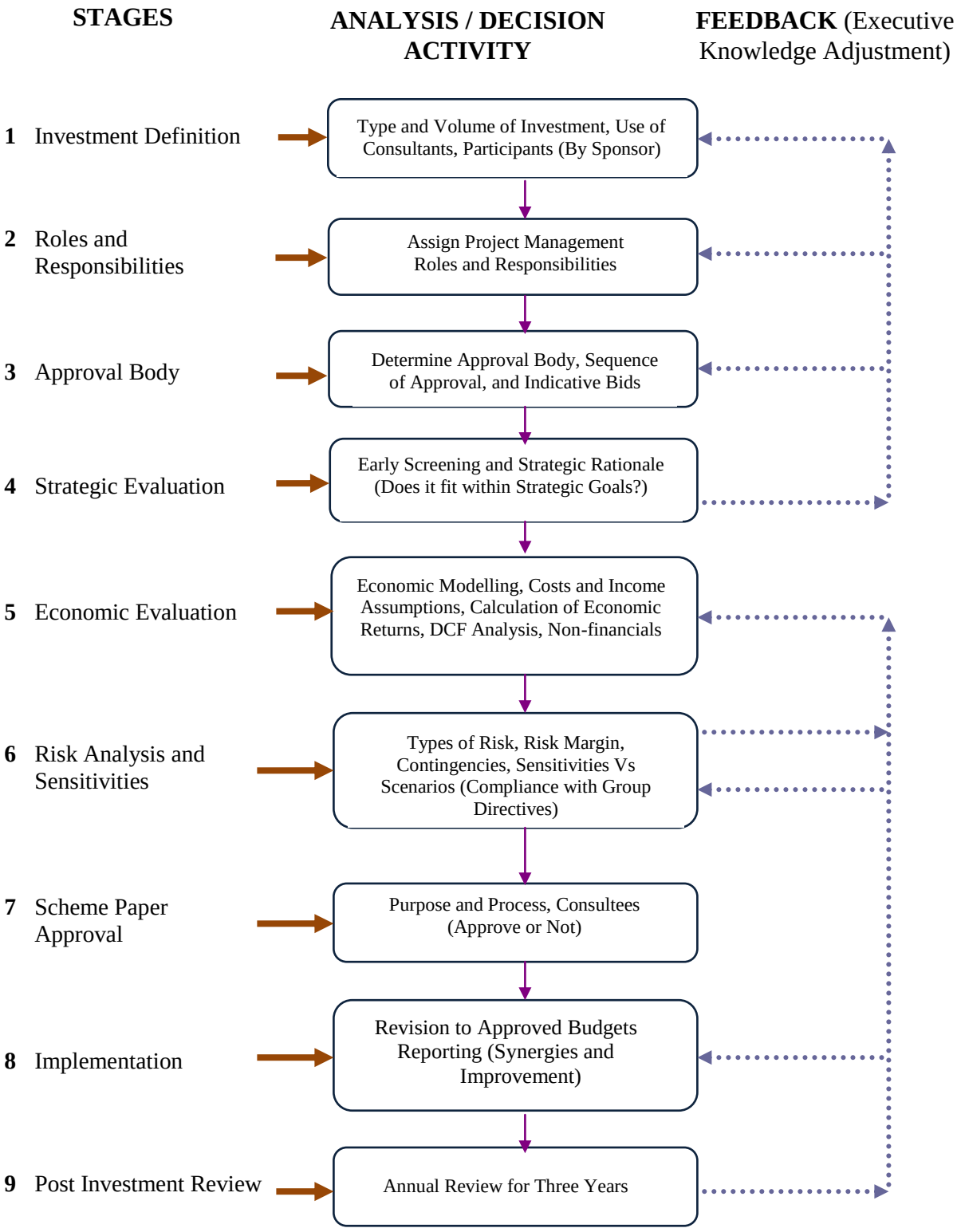
Complexity: The SID process within UTILITY plc was an intricate and meticulous process that went through nine well defined and documented stages. The stages are depicted in **Figure 5.3** and when compared with Harris' (1999) model, they were found to be similar, except that in stages two and three (not included in Harris' model), the company assigned responsibilities to those involved in the SID and decided on the approval body respectively. When asked how representative Harris' (1999) model was of the company's SID process, MANAGER I said:

> "Our process does not step away from this, but the inputs might vary depending on the scheme of appraisal. The stages can change in that the inputs are a bit different because we have to have a few forward plans. For example, if we make a major investment appraisal in generation then we need to have a view of what the market is going to be, so we need to look at things like: where our trade in the market is going to be. So it is more about inputs rather than the process being different." (*MANAGER I*)

However, the company's SID process (**Figure 5.3**) was based on *new market* and *new site development* as opposed to Harris' *business development / infrastructure investments*.

Figure 5.3

Strategic Investment Decision Process at UTILITY plc – New Site / Market



The first stage was *definition of investment* when the Sponsor(s) defined investment, establishing under which of the five groups the proposed investment fell, the scope and nature of the project, and the rationale (including potential benefits) of the project. It also involved specification and value or volume of the project, and the timescale. The sponsor(s) also determined who would be consulted from within the company and any eternal expertise required for the project. The level of participation of the various potential participants was also established at this stage. Then in the second stage *roles and responsibilities* of the participants identified in the first stage were determined and assigned. The sponsor(s) was required to clearly state who would be responsible for delivering the project, time management, costs, and quality control. In addition, the basis for implementation of the project and an indication of how the financial and technical post-investment review would be conducted were also handled at this stage. Next in the third stage, the sponsor(s) established which '*approval body*' within the Group hierarchy of delegation of authority would be responsible for approval of the project, and the sequence of approval. The Approval Body depended on the value or volume of the investments, the type of the project and the financial limits within which the body can authorise projects on behalf of the company. Non-binding indicative bids (e.g. indicative prices of plant and machinery) were also obtained from suppliers.

In stage four, *strategic evaluation* i.e. early screening of the project occurred. The project was screened for its strategic rationale and how this fitted within the overall group strategic goals. In addition, where applicable, the sponsor(s) also formulated the procurement strategy (the procurement approach that would leverage maximum value from the project). Then in stage five, *economic evaluation* was undertaken. The evaluation techniques used to assess the project were agreed on, and base assumptions used to calculate the economic returns of the investment (e.g. life and load factor of the station, corporation tax rate used, and discount rate used) were formulated. Project economic modelling (e.g. the use of Market Data Management (MDM) and forwards) took place at this stage. Further, the price curves for commodities were drawn at this stage and costs and income, and capital

expenditure assumptions made. The project cash flows were estimated and the individual project cash flows supported by relevant evidence. These cash flows were then used to conduct a financial evaluation of the project, which used appropriate discounted cash flow techniques. This stage also involved identification of any non-quantifiable benefits from the proposed investment and other general and project issues. This stage was closely linked to *risk* and *sensitivity analysis* (stage six).

In stage six, the different types of risk associated with the SID were identified and the approaches to manage the risk and any contingencies proposed. To ensure compliance with the Group Directives on risk, UTILITY's Risk Control Department would be consulted at this stage. The level of risk margin was also determined at this stage. Furthermore, sensitivity analysis to ascertain the various variables of the project against the base case values was undertaken during this stage. Different scenarios ('do nothing', 'high', 'low' and 'most likely' outcomes) were assessed and reasons for undertaking or rejecting alternative options established. From the aggregate of adverse sensitivities, potential 'worst case scenario' was ascertained. The results of the risk and sensitivity analysis, together with that of the strategic and economic evaluation formed the basis of the scheme paper which was prepared for approval of the project.

In the seventh stage, the *scheme paper* was prepared by the SID team and the investment recommended for approval by the appropriate approving body. A number of departments got involved in the preparation of the scheme paper, and the 'Group Investment Directive' required all the relevant departments to be involved. The departments involved were stated in the paper and their representatives (Managers or Directors) together with the sponsor would recommend the project to the Approval Body by signing the scheme paper. Where the project was within the Subsidiary's Managing Director limits, he authorised it. Otherwise he approved the project and forwarded it to the next rung of the authorisation ladder. Once approved and the expenditure authorised the investment was ready for implementation.

In the penultimate stage eight the project was *implemented*, with the person identified in the second stage as the project manager, in accordance with the approved budget and any revisions to the approved budget that became necessary. On achieving every milestone, reports were prepared including any reports on synergies realised or improvements required. Finally in the ninth stage, *post completion review* was undertaken. It comprised both financial and technical review of the project, and the approach used would have been established in the second stage, when roles and responsibilities were being ascertained. The financial and technical reviews took the form of annual reviews over three years.

Knowledge Adjustment: At each stage of the process whatever was learnt during the process were fed back to the preceding stages and forward to subsequent stages. This was achieved through a series of feedback and feedforward loops as illustrated in **Figure 5.3**.

Hierarchy of Managers Involved

Selection of Managers Involved: In stages one, two and three of the SID process, the managers who got involved were identified and the level of participation of the managers determined. The sponsor(s) of the project also established whether or not there would be any need to use consultants. Generally, various managers at different levels of management within the company got involved to various degrees. The project sponsor (leader) ensured that all the required functional expertise was available during the development and implementation of the project.

Profile of Managers Involved in SIDs: Various managers participated in the SID process and their level of participation ranged from minor to significant and depended on, among others, the value of the project and the required financial returns. The project *sponsor* (leader) got involved right from the start of the process, being responsible for the generation of sound investment ideas, rolling the project through the organisation, making sure that it was comprehensively evaluated, often managed the project once it was approved and compiled reports on performance of the project. Next, the *executive management team*

(UTILITY plc Board members) got involved in authorisation of projects where the value was up to £20 million (management contracts) and £5 million (all the other types of investment). They also ensured that any project with values exceeding £20 million or £5 million respectively was properly appraised. They were involved in their approval for authorisation.

Then, managers within *Corporate Finance and Planning* got involved in the review and modification of the overall process. They checked that the modelling was compliant with the Group Directive and that the assumptions were realistic and appropriate. They also agreed the valuation approach, advised on the suitable discount rate to use, and assessed the project's economics against the company's financial projections. In addition, managers within *Corporate Risk Control* got involved in assessment of the risk associated with the project and ensured that this was done in compliance with the parent's requirements, and all risks were addressed and correctly fed into the economic model used. Also managers at *Corporate Development and Strategy* got involved in checking that the project fitted within the overall group strategy. They were involved in the assessment of the project's strategic context, and formulating the detailed assumptions used to evaluate the project. The *Executive Support Group* got involved in review of the scheme paper and co-ordination of the approval process with the various approval bodies within the hierarchy of delegation of authority.

Functional Experts were also involved at relevant stages where expert advice on taxation, treasury issues, legal issues, environmental regulation issues, economic issues, and risk issues were required. They liaised with Corporate Finance and Planning, Corporate Risk Control, and Corporate Development and Strategy, to chart the communication route to and from the Groups' functional departments. Finally, the *Group Business Committee* was involved in the approval of any project, apart from management contracts, where the value or financial aspect exceeded £14 million (€20 million). For management contracts they got involved in approval of projects with values exceeding £70 million (€100 million).

Group Decision Support

Software: UTILITY plc had no specifically tailored decision support software, and where a model was required, the managers put together a spreadsheet model and used critical path analysis to appraise the SID.

Function: Microsoft Excel spreadsheets were used to develop financial models. However, any models used were checked by Corporate Finance and Planning to ensure that they met Group requirements and the assumptions contained therein realistic.

5.2.3 Managerial Judgement

Managerial judgement was exercised by managers at the nine stages of the SID process in UTILITY plc and was to a great extent influenced by the parent company through the various directives on investment decision process. Managerial opinions were also influenced by expert advice from managers within the group corporate departments, as well as external consultants (where applicable). Various psychological influences affected managerial judgement, and managers reacted variously to SID information, were involved in team and group processes, and assessed risk and return.

Psychological Influences on Judgement

Knowledge and Experience: The aspects of human knowledge and experience that influenced the SID processes at UTILITY plc included: knowledge of inner workings and processes within the company (the most important in influencing the SID); technical experience; managerial experience; professional background; knowledge of strategy formulation in the company; and knowledge and experience of other managers involved in the SID process respectively.

Managers considered *knowledge of strategy formulation in the company* important. According to one of the interviewees strategic evaluation was one of the key phases of the

SID process at UTILITY plc. The evaluation involved integration of the investment into the strategic goal of the division and identification of the strategic rationale for the project.

> "The company requires a strategic evaluation, which: provides an indication of how the proposed investment links with the overall company strategy; states the linkage with the company's response to environmental legislation; states whether the proposed investment is included in the current approved Business Plan; and states what type of investment it is, e.g. is the proposed investment part of the Investment in Existing Assets Programme? To carry out the strategic evaluation successfully, you need to have an understanding of how strategy is formulated within the company." (*MANAGER II*)

Managerial experience was another considerably important factor in influencing the SID and managers who got involved in the SID process had experience within the company and sector of more than 10 years (at least 5 of them in managerial function). For example all the managers who responded to the study were engineers within the company before becoming managers. The interviewees concurred that *knowledge of competitors* was reasonably important influencing the SID. They agreed that this was particularly important during the strategic evaluation stage.

Anchoring and Adjustment: The managers in UTILITY plc *compared and contrasted new project opportunities with similar projects they had been previously involved with* considerably. When estimating the cash flows the managers compared the new project and contrasted it with projects they were previously involved with. They also anchored their own judgement on *informal discussions and interactions with managers involved in the SID* and *views of company's top management* to a considerable extent. One manager commented that informal discussions and interactions with managers involved in the SID, gave managers the opportunity to bring other people into the loop rather than waiting for the scheme paper (stage seven of nine). He asserted that the informal discussions and interactions allowed the SID team to test the whole process and ensure that most of the stakeholders became involved throughout the project.

In addition managerial judgement was also anchored on the views of top management to a great extent. One of the managers commented on the importance of top management views:

> "These are sought at the time of evaluation and when the scheme paper is being prepared. You use your contacts and use senior management to bounce ideas off them, test the water and test the whole process to see whether you are going in the right direction. For example at this moment, I am looking at a proposal to buy some buildings. So my first discussions were with the Director Technology Services and General Manager about:
> ─Is it in our Business Plan; is it in our strategy to go forward?
> ─How do we structure it?
> ─What are we [going] to do with the buildings, how are we going to make the business case?
> So we have structured an idea to endorse and shall be talking to the Business Development people to tell them how this is going to [fit] into our business." (*MANAGER I*)

Availability: All managers involved in the SID process accessed *financial projections* and project evaluation reports.

Reaction to SID Information

Requirement for Presentation (Structuring) of SID Information: UTILITY had a template for the presentation of SID information. The template was developed by the Executive Support Group of the company; a department of the Holding Company. SIDs presented in line with the template sailed through the approval process.

Information Emphasised: The Company required the champion to expressly state in the project proposal: the value of the investment; what the investment was for; the site for the project; and the timing of the project. One of the interviewees commented that the company emphasised that the champion be responsible for ensuring:

> "The investment delivers value. He should identify the principal areas where value would be earned e.g. efficiency or capacity. He should also provide the post-tax nominal NPV, give the ratio of NPV to Investment Cost, indicate the value of IRR, and the payback period based on current Business Plan Assumptions." (*MANAGER II*)

The interviewee also confirmed that the company required the champion to be clearly stated in the document containing the project details, he said:

> "The document must show at the very beginning, the details of the project sponsor, and the operating division to which he belongs. In addition, the company requires the detail of who will be accountable for the delivery of the project from the onset of the project." (*MANAGER II*)

Team and Group Processes

Group Decisions: Managers in UTILITY plc participated in group decisions and different characteristics that managers possessed were important to the process. *Managers with*

different skills were considerably important to gaining consensus. This is probably, because the company seldom used specialist consultants during the SID process, i.e. most of the required skills were sourced in-house. Likewise, *managers who are socially compatible* were considerably important to gaining consensus in the company.

Brainstorming was used to a considerable extent, particularly in stage one (generation of opportunities). In addition, according to the MANAGER I, managers in UTILITY plc encountered *personal agendas* during group decision and found them considerably problematic.

On the contrary, the importance of *managers who respect superiors' opinions* in gaining consensus was limited. However, the respondents had mixed views on the importance of *managers trained in negotiating skills* to gaining consensus: whilst some managers found them considerably important, others found them unimportant. This could be explained by the role played by the manager in SID making. For example, managers who found this characteristic of managers unimportant were involved in authorisation of the projects.

Furthermore, *managers who respect superiors' opinions* were of limited importance to gaining consensus. As one of the interviewees explained, although the top managers within the company have all the authority and responsibility, they usually delegated the authority and responsibilities to middle level managers.

> "[UTILITY plc's] organisational structure is such that all authority and responsibility within the company originates from the Board of Directors. The Board delegates the responsibility for managing the day-to-day activities of the company to the company's Leadership Team and the Audit Committee. It is therefore the views of the Leadership Team and the Audit Committee that are important. The Audit Committee is responsible for ensuring regular review of all the activities, and puts adequate controls in place on behalf of the Board." (*MANAGER II*)

Finally, on the surface, achievement of consensus seemed to have been eased by the implementation of *Group Investment Directive* and *Group Investment Framework*.

Group Socio-political Process: As discussed earlier, UTILITY plc required and encouraged *an individual manager to champion and be responsible for the SID*. In addition, *managers formed temporary alliances expressly for the purpose of the SID* to a

considerable extent. The sponsor(s) managed stakeholders during the preparation of the project proposal, and convinced as managers as possible to support the project.

Assessment of Risk and Return

In UTILITY plc assessment of risk and return was a very important exercise. The evaluation of return took place in stage five of the SID process. In addition, risk assessment was conducted during stage six and entailed risk and sensitivity analysis.

Risk Evaluation Techniques: Managers checked the risk register to identify the risk associated with a project. Managers involved in evaluation of risk were encouraged to seek advice from the Division's Risk Control Department. The department enforced the parent company's directives on Risk Management and Commodity Risk Control, and advised managers on how to ensure compliance with the directives.

Techniques for Evaluation of Returns: Economic or value assessment was undertaken to ensure that the investment returned an acceptable level of returns and maintained or increased shareholder value. The most important evaluation technique used by the company was the *discounted cash flow technique*. The NPV was UTLITY's principal *acceptability indicator*. The investment's acceptability depended on its impact on shareholder value (which NPV measures). Other acceptability indicators the company used for assessment and ranking of projects were IRR, Pay Back Period, and Economic Value Added (EVA). For acquisitions, the company used ROCE, and for investments where future cash flow projections were not available, the managers were required to use alternative techniques, though the technique used must be agreed with Corporate Finance and Planning. Criteria for such investments included the need for the *investment to be earnings accretive* from the first year, and *no deterioration in operating cash flow* of the company.

According to the interviewees, managers conducted *sensitivity analysis* for each type of risk that had been identified. One of the interviewees explained that:

> "The company require[d] the level of risk margin included in the proposed capital expenditure to be stated. Sensitivity analysis [was] therefore conducted for each type of risk against a base case. The result of the analysis [was] usually tabulated to highlight the financial impact of the sensitivities on the base case NPV, IRR and NPV/Investment Cost ratio. The manager [was] required to provide an indication of the potential 'worst case' scenario from the aggregation of all the adverse sensitivities. Nevertheless, all the relevant options, i.e. 'do nothing', 'high and low', and the 'most likely', should be identified and outlined in the project documents. The manager must also explain any reasons for rejecting any alternative option." (*MANAGER II*)

Industry Rule of Thumb: Managers used *industry's rule of thumb* considerably during the SID process.

Risk Profile of Past Projects: Managers in UTILITY plc rarely used *compared risk associated with the SID with risk profile of past projects* during risk assessment. However, the company maintained a risk register, which was regularly reviewed at management meetings and updated quarterly when new risk were identified; and the register included risk related to: the Group's reputation; financial risk; health, safety and environmental risk; legal risk; taxation; employment (staffing); and contractual issues.

5.2.4 Case Summary

The findings from UTILITY plc based on the three-part analytic framework in **Figure 5.1** is summarised in Tables **5.4** and **5.5**. **Table 5.4** summarises the contextual factors that were operational at the company and the nature of SID process. **Table 5.5** summarises the factors of managerial involvement in SID, which are classified into *enhancers/enablers* and *inhibitors*: a classification which was based on the researcher's interpretation of the evidence gathered during the study.

For example, Manager II, commented on knowledge of strategy formulation:

> "The company requires a strategic evaluation, which: provides an indication of how the proposed investment links with the overall company strategy; states the linkage with the company's response to environmental legislation; states whether the proposed investment is included in the current approved Business Plan; and states what type of investment it is, e.g. is the proposed investment part of the Investment in Existing Assets Programme? To carry out the strategic evaluation successfully, you need to have an understanding of how strategy is formulated within the company." (*MANAGER II*)

The researcher interpreted this to imply that knowledge of strategy formulation facilitates judgement during strategic evaluation and therefore enhances managerial judgement and involvement. In contrast, if a manager lacked this strand of knowledge, it was more likely that the manager would feel less qualified to participate in this stage of the SID process.

Table 5.4 – Summary of findings (contextual factors and SID process)

Contextual Factors	SID Process

• Operating context
  ○ Apollonian organisational culture
  ○ Large UK division of a European group
  ○ Consultative management style
• Strategic direction
  ○ Invest in innovations and growth
  ○ Organic growth strategy
• Industry factors
  ○ Leading player in UK's energy market
  ○ Investment in technology that reduces CO_2 emissions
  ○ EU requirement of unbundling grid ownership from other activities
• Typology of SIDs
  ○ Development SIDs – new market development, new site development, new technology
• Profile of managers
  ○ Decision makers' characteristics
  – middle level managers – managers and heads of programmes
  – various educational background including accounting, finance, engineering
  – most worked for the company or within the energy sector for more than 10 years
	• SID stages
	  ○ Intricate, meticulous, bureaucratic, rule-bound, well documented process
	  – divisional level process
	  – nine key stages
	  ○ Knowledge adjustment
	  – series of feedback and feedforward loops
	• Hierarchy of managers involved
	  ○ Formal SID teams
	  ○ Selection of managers involved
	  – multiple managers
	  – involved by virtue of being:
	  • chosen by the sponsor(s)
	  • experts
	  ○ Profile of managers involved
	  – various functional titles
	  – expert knowledge e.g. engineers
	• Group decision support
	  ○ Software – Generic Microsoft Excel Spreadsheets
	  ○ Function – Building financial models

Another example is that the manager commented that the company emphasised that the sponsor(s) should ensure that:

> "The investment delivers value. He should identify the principal areas where value would be earned e.g. efficiency or capacity. He should also provide the post-tax nominal NPV, give the ratio of NPV to Investment Cost, indicate the value of IRR, and the payback period based on current Business Plan Assumptions." (*MANAGER II*)

The researcher interpreted this to mean that information on areas where the investment would add value to the company would facilitate managerial judgement on the feasibility and viability of the investment. However, not all managers would be able to competently conduct or understand NPV and IRR analysis, and this may inhibit their managerial

involvement/judgement. All the factors were analysed in a similar way and **Table 5.5** contain the result of those analyses.

Table 5.5 – Summary of findings (nature of managerial involvement)

Managerial Judgement (Nature of Involvement)	
Enhancers/Enablers	**Inhibitors**
• Psychological influences on judgement (3.1)	• Psychological influences on judgement
○ Knowledge and Experience (3.1.1)	○ Knowledge and Experience
– knowledge of industry/competition and inner workings	– lack of knowledge of strategy formulation restricted participation in strategic evaluation and may inhibit managerial involvement
– managerial, professional and technical experience	
– knowledge/experience of other managers	
– considerable use of brainstorming	
○ Anchoring and Adjustment (3.1.2)	○ Anchoring and Adjustment
– comparison with past	– dependence on top managers' views means own managerial judgement is stifled
○ Availability (3.1.3)	○ Availability
– access to SID information	– projections based on DCF techniques not easily understood by managers
○ Other (3.2)	
– informal discussions and interactions	
• Reaction to SID information	• Reaction to SID information
○ Requirement for presentation (structuring) of SID information (3.2.1)	○ Requirement for presentation (structuring) of SID information
– variety of acceptability indicators	– standard template inhibits managers' creativity
○ Information emphasized (3.2.2)	○ Information emphasized
– areas where the investment adds value	– lack of understanding of DCF limited wider managerial judgement
– sponsors' and deliverers' information	
• Team and Group Processes (3.3)	• Team and Group Processes
○ Group Decisions (3.3.1)	○ Group Decisions
– diversity of skills within the decision making team	– managers who are socially compatible
– managers trained in negotiating skills	– managers who respect superiors' views
○ Group Socio-political Process (3.3.2)	○ Group Socio-political Process
– personal agendas considered as problematic	– constrained agreement
– formation of temporary alliances	
• Assessment of Risk and Return (3.4)	• Assessment of Risk and Return
○ Risk evaluation techniques (3.4.1)	○ Risk evaluation techniques
– complementary evaluation techniques	– prescribed risk evaluation techniques
– dedicated function (department) to advise on effective risk evaluation	
○ Techniques for Evaluation of Expected Returns (3.4.2)	○ Techniques for Evaluation of Expected Returns
– sensitivity and scenario analysis make it easier for managers to decide on acceptability of the project	– lack of understanding of DCF limited wider managerial judgement
○ Industry Rule of Thumb (3.4.3)	○ Industry Rule of Thumb
– industry factors provide guidance (anchors) to managers	– only managers with knowledge and experience in the industry gets involved
○ Risk Profile of Past Projects (3.4.4)	○ Risk Profile of Past Projects
– availability of risk analysis schedules	– risk schedules only at Head Office

5.3 Case III – BEVERAGES plc

BEVERAGES plc would be classified as 'large' under the Companies Act 1985 (as amended) company classification. It produced a large variety of brands across the alcoholic beverages and drinks categories including spirits, wine and beer. Data analysed in this section comprised the analytic survey questionnaires, interview transcripts, information contained in the company's financial statements, and other publicly available information.

5.3.1 Contextual Factors

BEVERAGES plc was formed after a merger of two companies in the 1990s. It was a multinational company with a global presence in approximately 80 countries. The company's shares were listed on the LSE and the New York Stock Exchange (NYSE).

Organisational Culture: BEVERAGES had a *Main Board*, *Regional Boards*, and a *Group Executive Committee*, which assisted CEOs in their investment decisions. Boards and committees are facets of the *Apollonian culture*. In addition, the company's strategic focus was on its 'priority brands' in their most profitable markets with the aim of increasing brand growth of their global trademarks. Its SIDs followed a set and predictable pattern – another aspect of the Apollonian culture. According to the interviewee, the main philosophy of the company was:

> "Singular focus and huge team work. These were considered very important that dissenters and 'blockers for blocking sake' found themselves isolated."

This is an aspect of the Athenian culture – few or no private agenda conflicts.

Business Design: BEVERAGES was a divisionalised organisation, divided into regions headed by regional directors. Within each region were a number of subsidiary companies, each, headed by a CEO. The company had production facilities in the UK, the US, Canada, Spain, Italy, Africa, Latin America, Australia, India and the Caribbean. The day-to-day running of individual subsidiaries within the Group was the responsibility of the CEO. However, the CEO was supported in his decision making by the Group Executive

Committee, which was considered the most senior leadership team within the Group. Each member of the Executive Committee represented a key component of the Group's business i.e. the markets, or global supply, or global functions. Most investment decisions were delegated by the Group's Board to Regional Boards.

Management Style: According to the interviewee, top management of the company delegates investment decisions to the CEOs of the subsidiaries. CEOs of every subsidiary company within the Group, in liaison with Regional Directors, originated investments in line with the Group's overall strategy of organic growth in premium drinks. This is indicative of the *consultative* management style with some element of *autocracy*.

In addition, the Executive Committee encouraged the CEOs and the regional managers to consult and interact with committee throughout the SID process. The interviewee also noted that a lot was accomplished through informal meetings and lobbying by the sponsor and the project team.

> "The regional managers who are responsible for investment decisions in the regions have very close working relationships with the Executive Committee and members of the Committee, although senior, encourages regional managers to take them as equals."

These are features of the *consultative* management style.

Strategic Direction

Investment Philosophy: BEVERAGES plc's investment philosophy was to invest in premium drinks. In line with this philosophy, it invested in 'brand growth' in order to exploit every available opportunity in an entire drink category rather than focussing on individual brand within the category.

Investment Strategy: BEVERAGES investment strategy was organic growth. The Company's strategic focus was on its 'priority brands' in their most profitable markets with the aim of increasing brand growth of their global trademarks. It aimed to invest more resources into these and other brands with the best growth prospects. The company also

had an innovation programme that emphasised the premium brands, and endeavoured to build the best premium brands collection in the brewing industry. Another strategic strand of the organic growth strategy was to look for opportunities in emerging markets e.g. Brazil, Russia, India and China. The company therefore sought selective acquisitions to ensure continuous brands growth, and realization of the innovation and customer satisfaction strategies.

Industry Factors

Organisation's Position within the Industry: BEVERAGES plc was a leading brewing and distilling group of companies in the alcoholic beverages sector. In this sector, market share were broken down in terms of brewers; however, market share was being increasingly analysed by brand. The UK alcoholic beverage market was dominated by multinational corporations and BEVERAGES plc was one of the UK-based multinationals.

SID Trends within the Industry: At the time of this study, the alcoholic beverage sector in the UK was dominated by beer, which was the most popular alcoholic drink in the UK, accounting for 48% of the total amount spent on alcoholic drinks in 2005 (Research & Markets, 2006). In 2005, the beer market was worth more than £20 billion (*ibid.*). Lagers accounted for 68% of the market, and the domestic dark beers, e.g. ale and stout 32% (*ibid.*).

The beverage industry was also characterised by 'maturity of the market', which implied that future changes were not expected to be so spectacular. From 2005, a new licensing regime for retailing alcohol was introduced in England and Wales and this influenced the pattern of drinking significantly. There was also a prediction that the UK government might not allow further mergers between the major players (*ibid.*) and this would have an impact on growth through acquisitions within the UK. Therefore, the types of SID common to the sector were new site development and new product development (NPD).

Typology of SID

The managers in BEVERAGES plc who participated in the study based their responses on new site and new product development. These SIDs have been classified, for the purpose of this study, as *development* SIDs (see page 151).

Profile of Participating Managers

The characteristics of managers who participated in the study included:

- Level of management:
  - senior level managers – directors and regional manager
- Educational background:
  - management accounting
- Employment record
  - most worked for the company or within the alcoholic beverage sector for more than 10 years

The interviewee was a senior regional manager in the company at the time the interview was conducted. He was responsible for all customer data, trade terms and pricing, had been working for the company for more than 11 years, and rose through the ranks within the company. He has therefore been involved in a number of SIDs within the organisation. For the SID which formed the basis of his evidence, he was heavily involved in new product development. All quotes used in the following analysis are from this interviewee.

3.3.2 Nature of SID Process

The SID process within BEVERAGES plc was a complex process that took place at various levels of management, and it has been examined in three broad parts: stages of SIDs, hierarchy of managers involved, and group decision support.

Stages of SIDs

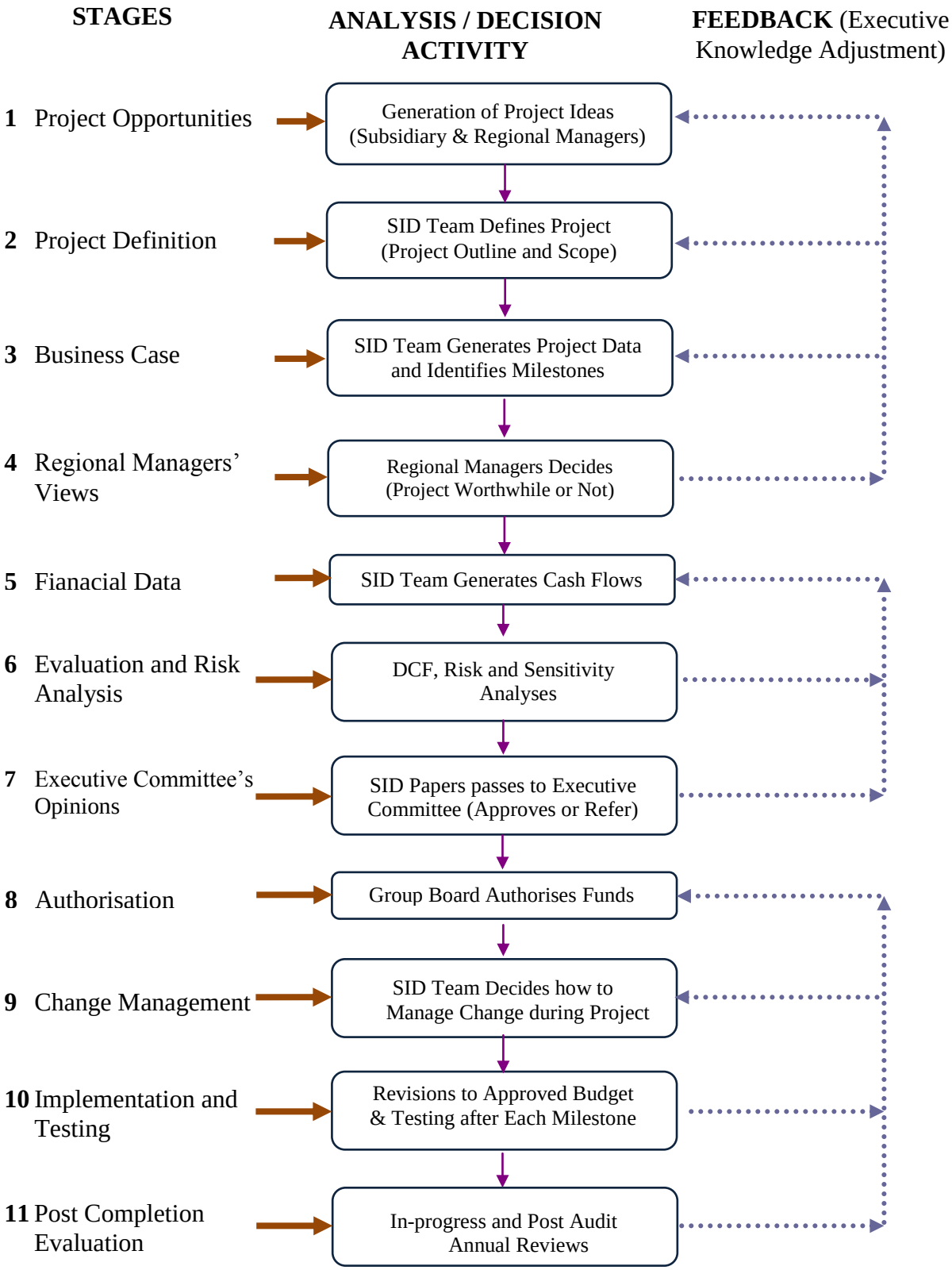
Complexity: The SID process was a lengthy one that went through eleven formal and documented stages as depicted in **Figure 5.4**. The stages of SID process at BEVERAGES plc included all the stages identified in Harris (1999). In addition to the seven stages that Harris identified, four more stages were identifiable at BEVERAGES plc.

The first stage entailed the CEO of a subsidiary company within the Group *originating investments* in line with the Group's overall strategy of organic growth in premium drinks. The CEO of the subsidiary and his management team, in liaison with the Regional Managers, came up with project ideas and opportunities that could be exploited. In the second stage, the CEO and his team *defined* the project. They determined the project outline and scope of the project. Then in the third stage, they put together information about the proposed project to enable them make a *business case* for undertaking the project, and outlined proposed milestones. This information was then presented to the Regional managers. In the fourth stage, *regional managers* scrutinised the project outline and formed *opinions* on the proposal. These opinions were then communicated to the CEO and his team, and on receiving the regional managers' views, the project either proceeded to the next stage or went back to stages one or two or three. Where the regional managers were satisfied with the project's strategic viability, it progressed to stage five; however, where they expressed doubts on the worth of the project it was referred back to the prior stages, and the process repeated.

In the fifth stage, the CEO and his team were asked to *generate the financial data* (cash inflows and cash outflows) for the project. Detailed Assumptions about the figures included in the financial data were also stated at this stage. The cash flows were then subjected to rigorous evaluation and analysis in the next stage. In the sixth stage, project data was *evaluated* usually using the discounted cash flow appraisal techniques, and the NPV and IRR compared to Group standards. At this stage, the SID team also conducted *sensitivity analysis* and came up with all possible scenarios based on 'what if' analysis. The team also identified *risk* that may be associated with the project and proposed ways in

Figure 5.4

Strategic Investment Decision Process at BEVERAGES plc – NPD



which the risk would be reduced. The project information, evaluation and risk assessment reports were then compiled into a *project paper* that was presented to the Executive Committee. However, the Executive Committee encouraged the CEOs and the regional managers to consult and interact with them throughout the SID process.

On receiving the project paper, in the seventh stage, the *Executive Committee* studied the paper to ensure that the project fitted the overall Group Strategy and made economic sense. The Committee then, either approved the project and forwarded it to the Group Board for authorisation, or referred the paper back to the SID team for necessary amendments. The project was then *authorised* by the Group Board in the eighth stage, and the approval and authority was communicated to the SID team who then prepared to implement the project in accordance with the budget and milestones established in the project paper. Most of the projects BEVERAGES plc undertook usually brought about new business processes, new manufacturing processes and new technology, which led to changes within the organisation. In the ninth stage, the managers developed a framework that would be use to *manage the change* that the projects were likely to demand. The managers assessed the likely impact of the projects on the employees and devised a change programme that would reduce their impact and lead to smooth implementation. Then, having devised a programme for successful change management, the tenth stage involved the *implementation* of the project. On completion of each phase of implementation, the facility was *tested* and any necessary adjustments made. Finally, in the final stage of the SID process in BEVERAGES plc a *post completion evaluation* was undertaken. It involved both *financial* and *technical* evaluation of the project, and how the change that the project necessitated was managed.

Knowledge Adjustment: As mentioned earlier, if Regional Managers were not satisfied with the project, they referred it back to the SID team to make necessary amendments before they consider it. Also during the post completion reviews, evaluation reports were prepared and circulated to every manager who was involved in the project so that lessons may be learnt from the project, and mistakes made during the project avoided in future.

Thus knowledge adjustment was achieved via a series of feedback and feed forward loops as shown in **Figure 5.4**.

Hierarchy of Managers Involved

Selection of Managers Involved: In BEVERAGES plc, multiple managers participated in the SID process. A number of internal and external managers were consulted and got involved in SID making. Different managers got involved in different roles depending on specific projects. The roles matched managers' characteristics, and the level of involvement varied from SID to SID. Accordingly, the roles changed from project to project and experts were consulted as and when deemed appropriate. For the types of SID typically made at BEVERAGES plc, there was not much involvement of external parties. Only three groups of experts, *viz.*: the suppliers; legal counsels, and designers, were consulted. This might have resulted from the high involvement of the Group Executive Committee. SIDs in the company were usually made in consultation with the Group Executive Committee, which probably did most of the external consultations.

Profile of Managers Involved in SIDs: The internal managers who were involved in the process included: Business Development Managers, Finance Managers, Operations Managers, Project Managers, Production Managers, Research and Development Managers, IT Managers, Commercial Directors, Regional Directors, Regional Executives, Chief Executive Officers, Global Directors, Marketing Analysts, and Business Intelligence Manager. The external experts consulted included: legal counsel and designers.

Group Decision Support

Software: BEVERAGES plc had no proprietary decision support system, and developed models to facilitate decision making as and when required. It mainly used spreadsheets, decision trees, critical path analysis and the 'Stage-Gate Navigator process'.

Function: Spreadsheets were used to build models and the decision trees, and critical path analysis used to facilitate analyses of project information. The Stage-Gate Navigator process was used to facilitate innovation during new product development.

5.3.3 Managerial Judgement

During the eleven stages of SID, managerial judgement was exercised by the managers involved. Managerial judgement was greatly influenced by the views of the Group Executive Committee, and managerial opinions altered by the continuous discussions both formal and informal among the project team and other managers involved.

Psychological Influences on Judgement

Knowledge and Experience: A variety of aspects of human knowledge and experience influenced the SID process. Knowledge of inner workings and processes within BEVERAGES plc; professional background; technical experience; managerial experience; and knowledge of strategy formulation at BEVERAGES plc, had considerable impact on the SID process at the company.

The managers considered *knowledge of strategy formulation in BEVERAGES plc* and *managerial experience* as considerably important during the SID process.

> "Knowledge of strategy formulation enables you to determine whether or not the project clashes with other strategic projects because there is always the problem of resource limitations."

However, the importance of *knowledge of competitors* depended on the individual manager some managers found it of limited importance, whilst others considered it extremely important during the SID process.

> "In our industry receipt of real time information about the likelihood of a competitor [copying your product] is very important, and your views of the project may change significantly as a result of receiving such information."

This is interesting since the alcoholic beverage sector is characterised by price competition, the more reason why we would expect knowledge of competitors to be extremely

important. The varying degree of importance attached to this aspect by different managers can be explained by the various roles played by different managers during the SID process.

Anchoring and Adjustment: Managers in BEVERAGES plc *compared and contrasted new projects opportunities with similar projects they were involved with*, and anchored their judgement on the past projects to a considerable extent. They also, considerably, pegged their opinions on the *views of BEVERAGES' top management*.

In contrast, although the interviewee noted that a lot was accomplished through informal meetings and lobbying by the sponsor and the project team, *informal discussions and interactions with managers involved in the SID process* did not influence managerial judgement much. According to the interviewee:

> "Other human information processes e.g. data analysis models, probabilities, what-if scenarios, change management tools, stakeholder analysis and cultural assessments had a lot more impact on our managerial judgement."

Availability: Project information, in particular, financial projections were made easily available and accessible to all managers involved in the SID process.

Reaction to SID Information

Requirement for Presentation (Structuring) of SID Information: BEVERAGES plc required that SID information should be detailed and comprehensive. Managers were encouraged to include information on: data analysis models used, probabilities and 'what if' scenarios, the financial and IT impacts of a project, stakeholder analysis, and cultural assessment, when presenting information on an SID. The managers believed that detailed and comprehensive information quickened managerial judgement and sped up the whole SID process.

Information Emphasised: *Real time* information was emphasised. The alcoholic beverages sector was characterised by price competition. Market share was analysed by

brewers and brands. All these meant that decisions should be based on real time information about pricing and market share.

Team and Group Processes

Group Decisions: The managers in BEVERAGES plc found a number of decision makers' skills and attributes important during group decision. *Managers with different skills* were considerably important to gaining consensus. Where the skill required could not be sourced from within the group, it was sourced externally. However, the only *external experts* the company consulted during the SID process were legal counsels and designers. All other required skills were sourced internally.

> "Managers with knowledge of what can or can not be done legally and of systems are considerably important."

In addition, *managers trained in negotiating skills* and *managers who are socially compatible* were considered reasonably important to gaining consensus.

The use of *brainstorming* during the SID process was considerable, and with regard to *managers who respect superiors' opinions*, Moses factor was not so important to gaining consensus during the SID process. The interviewee reiterated that:

> "The regional managers who are responsible for investment decisions in the regions have very close working relationships with the Executive Committee and members of the Committee, although senior, encourages regional managers to take them as equals."

In contrast, the managers were split on the impact of *personal agendas*. While some did not find personal agendas problematic, others found them extremely problematic to gaining consensus. This could be explained by the company's philosophy of "singular focus and huge team work", which was considered very important that "dissenters and 'blockers for blocking sake' found themselves isolated."

Group Socio-political Process: In BEVERAGES plc, it was company requirement that *an individual manager should champion and be responsible for the SID*. He was responsible for moving the SID through the organisation, ensuring that the change management tools

that would be used during implementation were identified, and for the implementing and testing of the project. The interviewee however advocated the establishment of "Project and Change Management Programme Office to be responsible for ensuring that projects do not clash". An important requirement that is related to this was:

> "various 'gate' meetings to sign off progression to the next stage of the project or SID."

Managers also *formed temporary alliances* to a great extent during the SID process, even though a lot of consultation took place behind the scene. The Executive Committee encouraged regional managers and the CEO and his team to consult the committee during the SID process.

Assessment of Risk and Return

At BEVERAGES plc, evaluation and risk analysis was a distinct stage (Stage six) of the SID process. It was an important stage at which the expected return was evaluated and associated risk assessed. Probability distribution was constructed, 'what-if' analysis conducted for the different scenarios, and models of how to manage risk formulated.

Risk Evaluation Techniques: The Company's risk evaluation techniques included:

- comparison with risk profiles of past projects
- feedback from customer focus group meetings

  > "The company organise[d] customer focus groups to obtain feedback on proposals and alternatives. We also assess[ed] any variations from the market norms."
- industry rule of thumb (to a limited extent)

Techniques for Evaluation Expected Returns: The techniques used for evaluation of returns included:

- evaluation of expected outcomes (based on probabilities or likelihood of alternative outcomes)
- discounted cash flow technique (NPV and IRR)

BEVERAGES plc also conducted sensitivity analysis, used decision trees and critical path analysis to incorporate risk into the evaluation of expected returns.

Industry Rule of Thumb: *Industry rule of thumb* was used by the company only to a limited degree during the SID process. This is probably because new product development and new site development do not lend themselves to rules of thumb.

Risk Profile of Past Projects: Managers in BEVERAGES looked at the risk profile of similar past projects to identify the risk associated with a project. Surprisingly, the interviewee did not know where the company's risk register was maintained; although he was aware that some kind of register was maintained.

3.3.4 Case Summary

The findings from BEVERAGES plc based on the three-part analytic framework in **Figure 5.1** is summarised in Tables **5.6** and **5.7**. **Table 5.6** summarises the contextual factors that were operational at the company and the nature of SID process within that context. **Table 5.7** summarises the factors of managerial judgement/involvement in SID. As the table shows, factors of managerial judgement were classified as *enhancers/enablers* and *inhibitors*. This classification was based on the researcher's interpretation of the evidence gathered during the study.

For example the interviewee commented that:

> "In our industry receipt of real time information about the likelihood of a competitor [copying your product] is very important, and your views of the project may change significantly as a result of receiving such information."

The researcher interpreted this to imply that, since the alcoholic beverage is characterised by price competition, availability of real time information about pricing and the market would enhance managerial judgment.

Table 5.6 – Summary of findings (contextual factors and SID process)

Contextual Factors	SID Process

• Operating context
  ○ Apollonian organisational culture
  ○ Large divisionalised group
  ○ Consultative (with element of autocracy) management style
• Strategic direction
  ○ Invest in brand growth rather than focussing on individual brands within a category
  ○ Organic growth of priority brands in the most profitable markets – innovations in premium brands
• Industry factors
  ○ Leading brewer in the UK/EU
  ○ Dominated by beer
  ○ Maturity of market (market share analysed by brewers and brands)
  ○ EU legislation means mergers were unlikely
• Typology of SIDs
  ○ Development – NPD
• Profile of managers
  ○ Decision makers' characteristics
  – senior level managers – directors and regional managers
  – middle level managers – e.g. business development managers etc.
  – various including accounting and finance
  – most worked for the company or within the metal sector for more than 10 years
	• SID stages
	  ○ Bureaucratic, rule-bound, well documented process
	  – Regional level process
	  – Eleven key stages
	  ○ Knowledge adjustment
	  – Series of feedback and feedforward loops
	• Hierarchy of managers involved
	  ○ Formal SID teams
	  ○ Selection of managers involved
	  – Multiple managers
	  – Involved by virtue of being:
	  • members of CEO's management team
	  • regional managers
	  • experts e.g. lawyers, designers
	  ○ Profile of managers involved
	  – Various functional titles
	  – Expert knowledge e.g. legal counsel, designers
	• Group decision support
	  ○ Generic software – Microsoft Excel spreadsheets, decision trees, critical path analysis, stage-gate navigator process
	  ○ Function
	  – Building models
	  – To facilitate analyses of project information

Another example is where the interviewee stated that informal discussions were not common during the SID process, rather:

> "Other human information processes e.g. data analysis models, probabilities, what-if scenarios, change management tools, stakeholder analysis and cultural assessments had a lot more impact on our managerial judgement."

The researcher interpreted this to mean the lack of informal discussions and interactions with managers involved in the SID process could have constrained managerial judgement. All the other evidence from the case was interpreted in a similar way and the result of this process of analysis and interpretation is summarised in **Table 5.7**.

Table 5.7 – Summary of findings (nature of managerial involvement)

Managerial Judgement (Nature of Involvement)	
Enhancers/Enablers	**Inhibitors**
• Psychological influences on judgement	• Psychological influences on judgement
3.1.1 ○ Knowledge and Experience	○ Knowledge and Experience
– Knowledge of industry/competition, inner workings and strategy formulation	– Dominance of more experienced regional managers
– managerial, professional and technical experience	
3.1.2 – Considerable use of brainstorming	
○ Anchoring and Adjustment	○ Anchoring and Adjustment
3.1.3 – Availability of past projects' information to use as anchors	– Regional managers' views constrain managerial judgement
○ Availability	○ Availability
– Access to SID information	– *No evidence of inhibitors*
3.2 • Reaction to SID information	• Reaction to SID information
3.2.1 ○ Requirement for presentation (structuring) of SID information	○ Requirement for presentation (structuring) of SID information
– *No evidence of enhancers*	– Presentation of detailed comprehensive project information, analyses, and evaluations
	– Use of spreadsheets, project management software and decision trees
3.2.2 ○ Information emphasized	○ Information emphasized
– Real-time market information	– *No evidence of inhibitors*.
3.3 • Team and Group Processes	• Team and Group Processes
○ Group Decisions	○ Group Decisions
3.3.1 – Diversity of skills within the decision making team	– Top management control (philosophy of singular focus, huge teamwork)
	– Managers who are socially compatible
	– Managers who respect superiors' views
3.3.2 ○ Group Socio-political Process	○ Group Socio-political Process
– Formation of temporary alliances	– Isolation of dissenters
	– Constrained agreement
• Assessment of Risk and Return	• Assessment of Risk and Return
○ Risk evaluation techniques	○ Risk evaluation techniques
3.4.1 – Use of complementary evaluation techniques	
– Customer focus groups feedback	
○ Techniques for Evaluation of Expected Returns	○ Techniques for Evaluation of Expected Returns
3.4.2 – Use of scenario planning and sensitivity analysis requires various managers' involvement	– Strict compliance with Group standards
3.4.3 ○ Industry Rule of Thumb	○ Industry Rule of Thumb
– Industry factors provide guidance to managers	– *No evidence of inhibitors*
3.4.4 ○ Risk Profile of Past Projects	○ Risk Profile of Past Projects
– Use of past profiles to assess risk	– No access to risk registers

5.4 Case IV – CHEMICALS plc

CHEMICALS plc was founded in the late 1880s and would be classified as a large company under the Companies Act 1985 (as amended) company classification. The company's shares were listed on both the LSE and NYSE. However, the company merged with another Group of companies founded at about the same time towards the end of 2006.

5.4.1 Contextual Factors

The company had five main lines of business related to industrial gas. It produced and supplied industrial gas essential to almost every manufacturing process. The company supplied a variety of gas to the petroleum, electronic, steel manufacturing, metal producing and fabricating, construction, ceramic, and food and beverage industries. It also operated a specialist logistics business that specialised in the distribution of industrial gas, and a vacuum technology business.

Operating Context

Organisational Culture: CHEMICALS had a number of subsidiary companies, each with a Board of Directors. The directors were responsible for various functions, and the CEO had a management team. These are features of the *Apollonian culture*. One of the company's strategies was to recruit, retain and develop the best people. A culture where employees joined the organisation and worked their way to the top and where there is secure career for employees is an Apollonian culture. Each business unit within the Group had a business unit *information system*, and these systems were accessible at Group level. The company also had an Intranet based *procedure manual*, with different areas of responsibility in different parts of the systems. Sets of rules and procedures are features of the Apollonian culture.

Business Design: CHEMICALS plc operated five main lines of business through 15 subsidiary companies. The 15 main subsidiaries were spread in more than 50 countries in Africa, the Americas, Asia, Europe and the Pacific. Each company had a Board of

Directors with each director on the Board responsible for a specific function. The day-to-day management of the subsidiary was vested in the CEO and a management team. The company generally derived the gas from chemical processes or from natural sources, and purchased some of the gas from other producers. It also supplied dissolved acetylene and a variety of special gas, medical gas, gas mixtures and gaseous chemicals.

Management Style: According to the interviewee, managers were usually encouraged to exploit experience and managerial judgement through the SID process. The company also encouraged SID teams to be responsible for the SID. Encouraging employees to participate is an aspect of the *consultative* management style.

Strategic Direction

Investment Philosophy: CHEMICALS plc's investment philosophy was to outperform peers in terms of safety, customer service, revenue growth, earnings and liquidity.

Investment Strategy: The investment strategy to bring to life the above philosophy had five components:

- Growth in markets – CHEMICALS plc's strategic direction was to invest in production and infrastructure facilities in emerging markets particularly China, as well as growth by acquisition in Poland and Canada.
- Improvement in ROCE – the company pursued opportunities to improve or divest underperforming assets.
- Improvement in business and operational efficiency – cost reduction and efficiency programmes across operating entities.
- Maximising the benefits from the company's operating model – CHEMICALS plc's business structure allowed successful implementation of global strategies tailored to market needs.
- Recruitment, retention and development of the best people – a wide range of programmes were developed to ensure that the company has the number of high calibre employees required to implement the growth strategy.

The strategy was frequently fully reviewed and approved by the company's Board of Directors and implemented by the CEO and his management team. In addition to the above components CHEMICALS plc was committed to safety and to and improvement in environmental performance of its operations.

Industry Factors

Organisation's Position within the Industry: CHEMICALS plc was one of the largest multinational industrial gas companies, with 20% share of the world industrial gas market.

SID Trends within the Industry: The industrial gas industry was capital-intensive. It was facing increasing demand, and to achieve economies of scale there was need for large production units and distribution networks. The industry was therefore characterised by fixed asset investments, a move towards global customers and transfer of applications technology worldwide. Accordingly, the industrial gas business was handled by a relatively small number of companies internationally.

These companies had generally expanded, either through organic growth or through mergers and acquisition. The 2006 merger of CHEMICALS plc with another player in the industry is an example of the move to achieve economies of scale and remain competitive. One or more of the other major international producers competed in each of the industrial gas markets served by CHEMICALS plc, and in many of the markets there were smaller local producers as well. Overall, the world market for industrial gas and related products was estimated to be worth approximately £25 billion a year.

Typology of SID

In pursuance of the growth strategy, the types of strategic investments the company undertook included new market development, new site and site development (operating facilities e.g. new location, relocation and expansion). These SIDs have been classified, for

the purpose of this study, as *development* SIDs (see page 150). The SID that formed the basis of the responses from the survey respondent and interviewee was new market development.

Profile of Participating Managers

The characteristics of the managers who participated in the study included:

- Level of management:
  - senior level manager – director
- Educational background:
  - management accounting
- Employment record
  - most worked for the company or within the industrial gas sector for 10 years or more

The interviewee (respondent) was a senior manager and all quotes contained in this section are from him.

5.4.2 Nature of SID Process

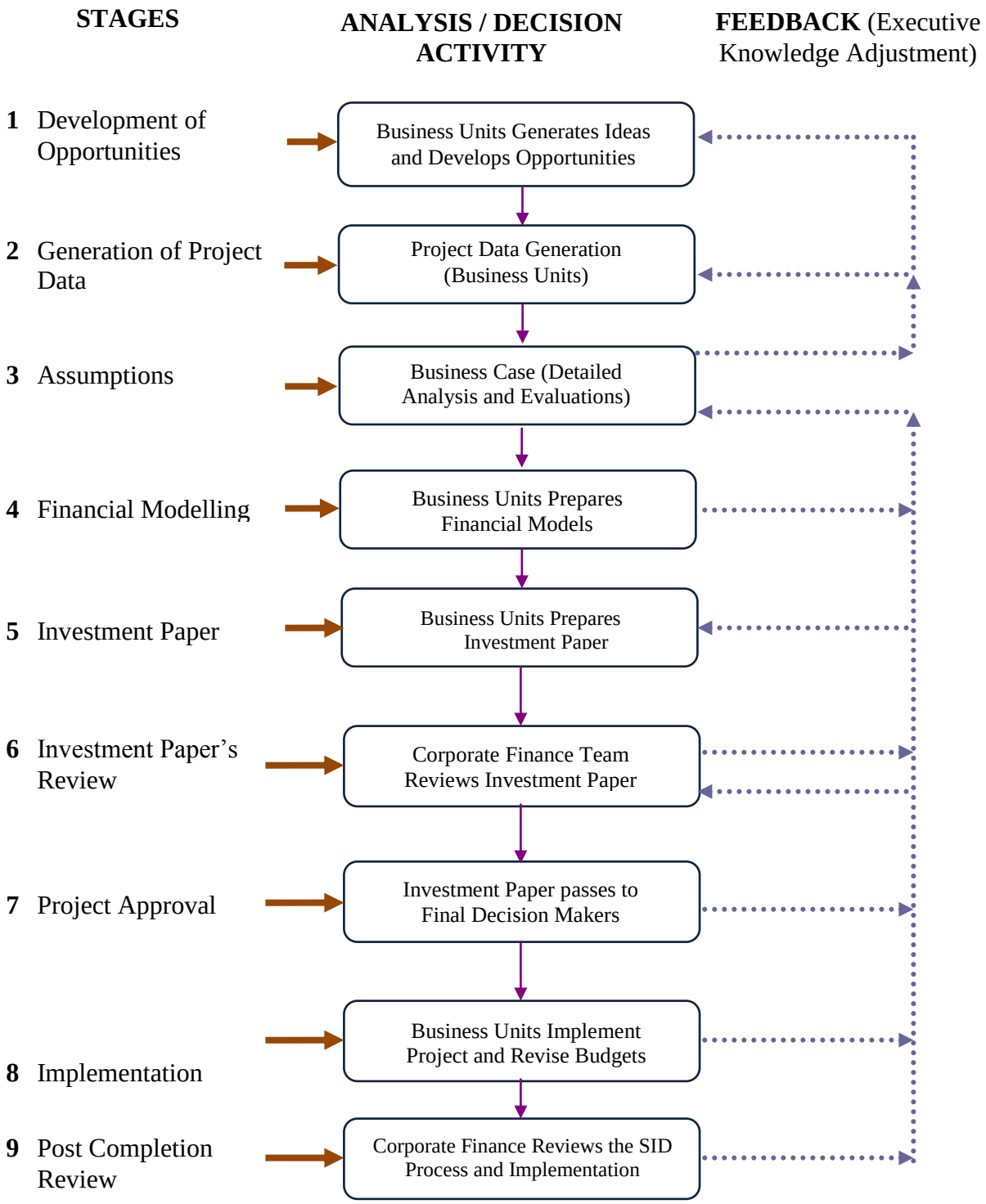
The SID process in CHEMICALS plc took place in phases and involved multiple managers at various levels of the company's organisational hierarchy. The process has been discussed under three rubrics: stages of SIDs, hierarchy of managers involved and group decision support.

Stages of SIDs

Complexity: The SID process in the company was an intricate process and went through nine identifiable stages (**Figure 5.5**). When compared to Harris' (1999) model, it was similar with minor differences. At higher levels in the hierarchy of the company's structure, the process was closer to Harris', the key difference being that CHEMICALS plc undertook Harris' stage four (*detailed assumptions*) before stage three (*divisional executive*

Figure 5.5

Strategic Investment Decision Process at CHEMICALS plc – Site Development



team views). In addition, the corporate finance team got involved at various stages depending on the project. On some projects they get involved earlier as a control measure, i.e. to set the ground rules.

In the first stage of the SID process business unit managers, in consultation with the Group Corporate Finance Team, *developed opportunities* for investment. They ensured that the opportunities were in line with the Group's overall strategy of growth. This is followed by *generation of project data* in the second stage. The business units generated the project data (both financial and non-financial) that were relevant to the SID. This data were used by the business unit managers, in the third stage, to *formulate assumptions* and build a *business case* for the project. In the third stage the managers made detailed assumptions of the project, and conducted DCF evaluations and risk analysis to help them build financial models. These assumptions and the results of the DCF evaluations were incorporated into the financial model built in the fourth stage. The model (including evaluations and analyses) was forwarded to the corporate finance team to enable them gain an understanding of the project. The team assisted the business units refine their models and checked if the evaluations were consistent with previous evaluations, and ensured that there were no material errors in the evaluations. They then returned the investment documents with their recommendations. In the fifth stage, the business units used the reviewed evaluations and financial models to put together an *investment paper*.

After the paper had been finalised by the business units, in the sixth stage, they were sent to the corporate finance team for final *review* and approval. The team then forwarded the investment paper to the final decision makers, and in the seventh stage the *project* was *approved* and the business units managers authorised to spend the fund budgeted for the project. Being quite a large organisation, CHEMICALS plc had a number of levels of approval, which depended on the levels of expenditure. The final decision makers included: Business Units' Decision Makers, Investment Committee and the Board. There were projects that would be approved by the Business Units' Decision Makers; others would go to the Investment Committee; and yet others went to the Board. At the highest level it got as far as the Board but others were delegated further down the organisation.

In the eighth stage, the *project* was *implemented* in line with the budget and where necessary, the budget was revised to reflect the circumstances on the ground. It was the responsibility of the business units to implement the project and carry out necessary tests. Then in the final stage, the corporate finance team conducted a *post completion review*.

Knowledge Adjustment: During the SID process managers' knowledge was adjusted through a series of feedback and feed forward loops (**Figure 5.5**), as the project documents moved between teams. As an issue got highlighted during the SID process, the managers worked to resolve it and they would later used the knowledge and experience gained in future strategic investment decision making process. In addition after the post completion review, the Corporate Finance Team prepared a report and the business units were debriefed on the SID process and how the implementation of the project went. The team used the findings of the review to inform future SID process, where the findings were used to compare and contrast with new projects.

Hierarchy of Managers Involved

Selection of Managers Involved: In CHEMICALS plc, multiple internal managers got involved in the SID process at various stages, depending on the type of SID and the budgeted level of expenditure. The involvement of the managers took various forms that were both formal and informal (formal meetings or corridor meetings or discussions through emails, a whole range of interactions). The selection of managers to get involved depended on the circumstances of the SID process. As you move up the organisational hierarchy the involvement was more formal and selection was by virtue of being a member of a formal team. In other words, the higher up the hierarchy the more formal managerial involvement.

Profile of Managers Involved in SIDs: The managers who got involved included: Business Development Managers, Finance Managers, ICT managers, Project Managers, Business Unit Managers, and Senior Group Directors. The company's strategy was to recruit and retain the best skills, and it sourced all its expertise from within the company and did not involve external managers or consultants during the SID process.

Group Decision Support

Software: CHEMICALS plc used both tailor-made decision support software and generic spreadsheets. Each business unit had its own systems some of which were integrated, while the control version of the software was maintained at Group level. The business units' systems stood alone: though Group level managers were able to pull any information they required from it.

Function: According to the interviewee, the system was very important:

> "It helps validate historic information: it is used to produce or make projections but, particularly, if you looking at a new project, where there is high novelty, it is less relevant."

The company also had an Intranet based procedure manual, with different areas of responsibility in different parts of the systems. The tailor-made software was used to support the strategic risk process (see page 222).

In summary, the SID process at CHEMICALS plc had evolved and continuously improved over the years. As the interviewee put it:

> "The process has improved a lot over the years; I guess because it involves different people with different interests and levels or tiers of expertise, to the extent that there has been more continuous improvement in the personalities. We are always tweaking our process in response to new understanding that comes up; but I guess we could always do things better."

5.4.3 Managerial Judgement

Managers in CHEMICALS plc exercised managerial judgement at the nine stages of the SID process. Managerial judgement was considerably influenced by various psychological influences, with managers reacting variously to SID information. Managers were involved in team and group decisions and assessed project risk and return during the process.

Psychological Influences on Judgement

Knowledge and Experience: Professional background, knowledge of inner workings or processes within CHEMICALS plc, and knowledge and experience of other managers involved in the SID process considerably influenced the SID process in the company.

Surprisingly, managerial experience was not considered at all important in influencing the SIDs; while technical experience, knowledge of competitors, and knowledge of strategy formulation in the company only had limited influences on the SID process.

Interestingly, according to the interviewee, the CHEMICALS' to management usually encouraged managers to exploit *experience* and *managerial judgement* through the SID process. Furthermore, most of the managers who got involved in the SID process had experience of 10 years or more.

Anchoring and Adjustment: Managers in CHEMICALS anchored managerial judgement on *comparing and contrasting new project opportunities with similar projects the managers were involved with* to a considerable extent. They also anchored their opinions of the SID on the *views of the company's top management* and *informal discussions with managers involved in the SID process* considerably. According to the interviewee informal discussions and interactions were vital:

> "They help us to have the same standing; they lead to a more robust understanding of the opportunity; and get everyone binding into the decision."

Availability: SID information were made available to decision makers, in particular *financial projections* were easily accessible to the managers and they were provided the information they required to conduct the risk-return assessments.

Reaction to SID Information

Requirement for Presentation of SID Information: The Company encouraged business units to discuss the investment ideas with the Corporate Finance Team and to develop investment opportunities in consultation with the team. However, when it came to presentation of information for review and approval, business unit managers were required to make a formal and comprehensive presentation of the project information, analyses, evaluations and financial models. Where a business unit failed to abide by this requirement, the project was referred back.

Information Emphasised: Risk and sensitivity analysis, evaluation of returns and financial models were emphasised.

Team and Group Processes

Group Decisions: Managers participated in group decisions and found a variety of managerial characteristics important to the process. *Managers with different skills* and *managers who respect superiors' opinions* were considerably important to gaining consensus during the SID process.

In contrast, *managers who are socially compatible* were considered of limited importance in gaining consensus; and *personal agendas* slightly problematic. Managers *trained in negotiating skills* were not important to gaining consensus during SID and *brainstorming* was not used during the SID process.

Group Socio-political Process: Although *individual managers* could *champion* and be *responsible for the SID*, it was not a requirement of CHEMICALS plc. The Company instead required an SID team to champion and be responsible for the SID.

Managers in the company did not also form *temporary alliances or sub-groups particularly for the purpose of the SID*. They operated within the formal SID teams during the SID process.

Assessment of Risk and Return

CHEMICALS plc required managers to identify risk associated with the SID as far as possible; and to assess the returns vis-à-vis the identified risk. As part of the risk analysis they conducted a sensitivity analysis.

> "Typically we base our risk analysis on sensitivities. We also have a required return on our investment, which would be flexed as it were from the base return and then flexed on the risk factors."

Risk Evaluation Techniques: The managers were encouraged to ensure that all the potential risk was identified and how the risk would be managed devised. There was a central *Risk Management Team*, which advised managers and encouraged them to embed *risk management* into the SID process. The team had a risk framework that was used to co-ordinate inputs from all the relevant departments and divisions within the Group. The team was responsible for reporting material risk to the Board on quarterly basis and risk currently affecting the company on bi-annual basis. It also provided managers with the tools and techniques of risk analysis through the company's Intranet system.

The Risk Management Team encouraged managers to *qualitatively assess strategic risk* associated with the SID based on their *own managerial judgement*. The company believed that assessing strategic risk using a qualitative approach (*strategic risk process*), harnessed *managerial experience* and *judgement*. This in turn encouraged managers to think of the key risk facing the company and incorporate them in their evaluation of the SID. The company conducted the strategic risk process through workshops (more than 80 workshops delivered annually), and used specialist software to support the process.

Techniques for Evaluation of Expected Returns: DCF techniques of NPV and IRR were employed to evaluate expected returns. The managers also considerably used *evaluation of expected outcomes (based on probabilities or likelihood of alternative outcomes)* to incorporate the risk associated with the SID.

Despite the importance attached to assessment of returns and the associated risk, some managers were not aware that the Risk Management Team maintained records of risk. The interviewee confirmed that some managers did not know where the risk registers were maintained within the organisation.

Industry Rule of Thumb: *Industry rule of thumb* was also used by the managers only to a limited degree during the SID process.

Risk Profile of Past Projects: *Comparison with risk profiles of past projects* was considerably used by the company to assess the risk associated with the SID. The managers compared the risk associated with the SID with risk profiles of past projects, which were available from the Risk Management Team.

5.4.4 Case Summary

The findings from METAL plc based on the three-part analytic framework in **Figure 5.1** is summarised in Tables **5.8** and **5.9**. **Table 5.8** summarises the contextual factors that were operational at the company and the SID process.

Table 5.8 – Summary of findings (contextual factors and SID process)

Contextual Factors	SID Process

• Operating context
  ○ Apollonian organisational culture
  ○ Large group with 15 main subsidiaries
  ○ Consultative management style
• Strategic direction
  ○ Invest in safety, customer service, revenue growth earnings and liquidity to outperform peers
  ○ A strategy of growth in markets
• Industry factors
  ○ One of largest multinational industrial gas companies with a 20% share of world industrial gas market
  ○ Fixed assets investments
  ○ Relatively a small number of companies internationally
• Typology of SIDs
  ○ Development SIDs – new market development, and new site development
• Profile of managers
  ○ Decision makers' characteristics
  – subsidiary company level managers – CEO and his management team
  – various educational background including accounting, finance, engineering
  – most worked for the company or within the energy sector for more than 10 years
	• SID stages
	  ○ Intricate, bureaucratic, rule-bound, well-documented process
	  – subsidiary level process
	  – nine key stages
	  ○ Knowledge adjustment
	  – series of feedback and feedforward loops
	• Hierarchy of managers involved
	  ○ Formal SID teams
	  ○ Selection of managers involved
	  – multiple managers
	  – involved by virtue of being:
	  • CEO or member of his management team
	  • experts within the organisation
	  ○ Profile of managers involved
	  – various functional titles
	  – expert knowledge e.g. ICT, business development
	• Group decision support
	  ○ Software – Both generic Microsoft Excel Spreadsheets and tailor made software
	  ○ Function – to validate historic information, generate projections, and hold the procedure manual

Table 5.9 – Summary of findings (nature of managerial involvement)

Managerial Judgement (Nature of Involvement)	
Enhancers/Enablers	**Inhibitors**
3.1 • Psychological influences on judgement 3.1.1 ○ Knowledge and Experience – knowledge of industry/competition, inner workings and strategy formulation – professional and technical experience – knowledge/experience of other managers 3.1.2 ○ Anchoring and Adjustment – comparison with past 3.1.2 ○ Availability – access to SID information ○ Other – informal discussions and interactions	• Psychological influences on judgement ○ Knowledge and Experience – no use of brainstorming ○ Anchoring and Adjustment – reliance on top managers' views means own managerial judgement is stifled ○ Availability – *no evidence of inhibitors*
3.2 • Reaction to SID information 3.2.1 ○ Requirement for presentation (structuring) of SID information – *no evidence of enhancers* 3.2.1 ○ Information emphasized – informal discussions with the Corporate Finance Team	• Reaction to SID information ○ Requirement for presentation (structuring) of SID information – formal and comprehensive presentation of SID information inhibits managers' creativity – mix of own and group controlled systems ○ Information emphasized – Intranet based procedures manual
3.3 • Team and Group Processes 3.3.1 ○ Group Decisions – diversity of skills within the decision making team 3.3.2 ○ Group Socio-political Process – personal agendas considered problematic	• Team and Group Processes ○ Group Decisions – managers who are socially compatible – managers who respect superiors' views ○ Group Socio-political Process – no temporary alliances formed – constrained agreement
3.4 • Assessment of Risk and Return 3.4.1 ○ Risk evaluation techniques – qualitative assemment of risk based on own managerial judgement – stratyegic risk process workshops 3.4.2 ○ Techniques for Evaluation of Expected Returns – use of sensitivity and scenario analysis 3.4.2 ○ Industry Rule of Thumb – *no evidence of enhancers* 3.4.4 ○ Risk Profile of Past Projects – record of material risk quarterly and reporting biannually means up-to-date risk profiles	• Assessment of Risk and Return ○ Risk evaluation techniques – risk management team's imposed views may de-motivate managers ○ Techniques for Evaluation of Expected Returns – lack of understanding of DCF limited wider managerial judgement ○ Industry Rule of Thumb – limited use of rule of thumb for means less anchors available to less experienced managers ○ Risk Profile of Past Projects – risk framework provided by Risk Management Team

Table 5.9 summarises factors of managerial involvement in SID. These factors were classified as *enhancers/enablers* and *inhibitors*: a classification which was based on the researcher's interpretation of the evidence gathered during the study.

For example, the interviewee confirmed that managers within the company used informal discussions and interactions with other managers involved in the SID process to a considerable extent, saying:

> "They help us to have the same standing; they lead to a more robust understanding of the opportunity; and get everyone binding into the decision."

The researcher interpreted this to imply that informal discussions and interactions with other managers, by improving the understanding of the opportunity enhanced managerial judgement.

Another example is that the interviewee commented that:

> "The process has improved a lot over the years; I guess because it involves different people with different interests and levels or tiers of expertise, to the extent that there has been more continuous improvement in the personalities. We are always tweaking our process in response to new understanding that comes up; but I guess we could always do things better."

The researcher interpreted this to mean that inclusion of managers with different skills leads to improvement in managerial judgement of the managers, and therefore classified this factor as an enhancer. However, managers with low level of expertise may be implicitly intimidated and this may inhibit their managerial judgement. Also since managers with different interests were involved, this might have led to pursuance of personal agenda, which could have hampered managerial judgement.

All the factors were analysed in a similar way and **Table 5.9** shows a summary of the analyses and interpretation.

5.5 Case V – HEALTHCARE Ltd.

HEALTHCARE Ltd was a company that could be classified as a 'medium enterprise' under the Companies Act 1985 (as amended) criteria for classifying companies. Data analysed in this section comprised the survey questionnaire, interview transcripts and publicly available information.

5.5.1 Contextual Factors

HEALTHCARE Ltd was founded in 1994 and commenced business in 1997. Its major activity was to provide nursing services to NHS Trusts, private hospitals, clinics, nursing homes, psychiatric clinics, drug research centres, community centres and GP surgeries within the UK.

Operating Context

Organisational Culture: The Company's only shareholder was the Managing Director (MD), who was the dominant personality within the organisation. The company was divided into functional departments i.e. operations, transport, accounts, and information technology. The employees worked for the MD (a Zeus figure). These are features of the *Zeus culture*. The MD was feared, respected and occasionally loved, which is another aspect of the Zeus culture. MANAGER H1 commented:

> "Because of the powers of the MD, disagreement is not very evident, because people don't want to be seen as disagreeing with the MD. You don't want to be that guy who is not on the side of the MD, therefore disagreement is not very evident.

Empathy was a very important form of communication within the company and depended on affinity and trust of the employees. For example one manager said:

> "We have been working for this organisation for a very long time, so irrespective of the degree to which you are involved, you still want to see it succeed and as a result you try to give the project your best"

This is another feature of the Zeus culture. Also while commenting on the SID process in the company MANAGER H3 said:

> "It is a very informal show. It is not as if someone is calling a meeting to say I have an idea: What do you make of it? Should we weigh the merits and the demerits? Do you have an idea? No it is not like that at all."

Conducting business in an informal intuitive and personal manner is a facet of the Zeus culture. In the company things are not documented and there are no control procedures, which is typical in the Zeus culture. MANAGER H2, when commenting on the identification of potential risk associated with a project, commented:

> "We each have a risk register in our 'individual natural hard disks' which we carry along with us everywhere. If it crashes there will be nothing for others who will follow to rely on. It won't help because if we left the company, then there is nothing to help new managers who would join the company.

All the managers got employed in the company as a result of network with the MD, e.g. the Operations Manager was an old boy (he studied with the MD at the same university), the transport manager was related to the Operations Manager, and the IT manager had attended a postgraduate course together with the Operations Manager. The company was based on networks of family, old boys and comrades – an aspect of the Zeus culture.

Business Design: The company organisation was typical of that of a family-owned private limited company. The shareholder was the executive director and was the dominant personality within the organisation. He was responsible for all the decision making that took place within the company. The company's main operations were in the UK; however, it also provided similar services in the USA and owned a hospital in Africa. As discussed earlier, the company operated through functional departments.

Management Style: The SID process in the company was dominated by top management and the involvement of middle managers was unpredictable or inconsistent. MANAGER H2, when commenting on how the MD related with the employees, said:

> "We don't really have a situation where you would discuss issues until you reach a compromise, because of the fact that you have this one individual who is always masterminding the whole project. There is no room for discussions, it is like Soviet Union; there is only room for one thing, support. In such a situation you can only advise."

In addition MANAGER H3 noted that:

> "Of course no one is going to stop you from putting across your views, but whether the MD takes it on board or not tells you what to do in the future. I would say that the actions and reactions of top management do not encourage meaningful discussions of the investments."

These are aspects of the *autocratic* management style. There was passive resistance by the managers as MANAGER H1 puts it:

> "You do have people grumbling in the background if they are not happy with the whole idea. But again that is quickly overridden by the fact that the whole show is dominated by one man. So you can express your unhappiness or your dismay quietly but that is how far it goes because whatever the MD says is final."

This is another feature of the autocratic management style.

Strategic Direction

Investment Philosophy: HEALTHCARE Ltd's investment philosophy was to invest in *diversification* and *growth*. The company had numerous competitors in the UK and to ensure survival, the MD decided to grow organically and diversify into other areas in the service sector e.g. security, and into other markets globally e.g. the US and Africa.

Investment Strategy: The Company planned to invest in a number of nursing agencies in the US and had already opened the first one in New York. It also planned to invest in Africa, where it had opened the first hospital and was planning to invest in another hospital. The company's managers anticipated that with the then financial squeeze government had imposed on the NHS and the local councils struggling financially, the demand for agency nurses and care workers was likely to reduce significantly in the short, medium and probably long term.

Industry Factors

Organisation's Position within the Industry: HEALTHCARE Ltd was one of the numerous nursing employment agencies. Its main customer was the NHS; approximately 75% of its services were to the NHS.

SID Trends within the Industry: The healthcare sector in the UK is highly affected by government policies: it is a battle ground for the main political parties in the UK and would probably never be divorced from national and local politics. The healthcare service providers generally benefited from Government's increased investment in the sector from

1997. However, by 2006 a number of the custodians of these funds (the Primary Care Trusts – PCTs) had started accumulating deficits, which resulted in more government policies requiring the PCTs to manage the funds better. One way the PCTs did this was to re-examine areas where the Trusts were not receiving value for money. One area that most PCTs looked into was reduction in the number of agency nurses they used: agency nurses cost the PCTs more than the hospital nurses. This affected those firms such as HEALTHCARE Ltd that were supplying nursing services to the PCTs.

Typology of SID

The SIDs undertaken by companies within the sector related to expansion and diversification and at HEALTHCARE Ltd the SIDs included: new market development, new site, site development, new technology, and acquisition of business assets. These SIDs have been classified, for the purpose of this study, as *development* SIDs, (dealing with situations or problems that require an organisation to adapt and include new or development in their names). The SIDs that formed the basis of the responses from the interviewees were new market development, new site development and new technology.

Profile of Participating Managers

The characteristics of managers who participated in the study included:

- Level of management:
  - middle level managers – operations manager, financial controller and IT manager
- Educational background:
  - business technology
  - engineering
  - financial accounting
- Employment record:
  - most worked for the company or within the healthcare sector for 10 years or more

The interviewees were the Financial Controller, the IT Manager, and the Operations Manager and in the remainder of this section the managers will be referred to as MANAGER H1, MANAGER H2, and MANAGER H3 respectively. Jointly, they had been involved in a number of SIDs within the company.

5.5.2 Nature SID Process

The SID process in HEALTHCARE Ltd was characterised by a high degree of informality and varied from SID to SID; moreover, most of the processes were not documented. The process was dominated by top management and the involvement of middle managers was unpredictable or inconsistent.

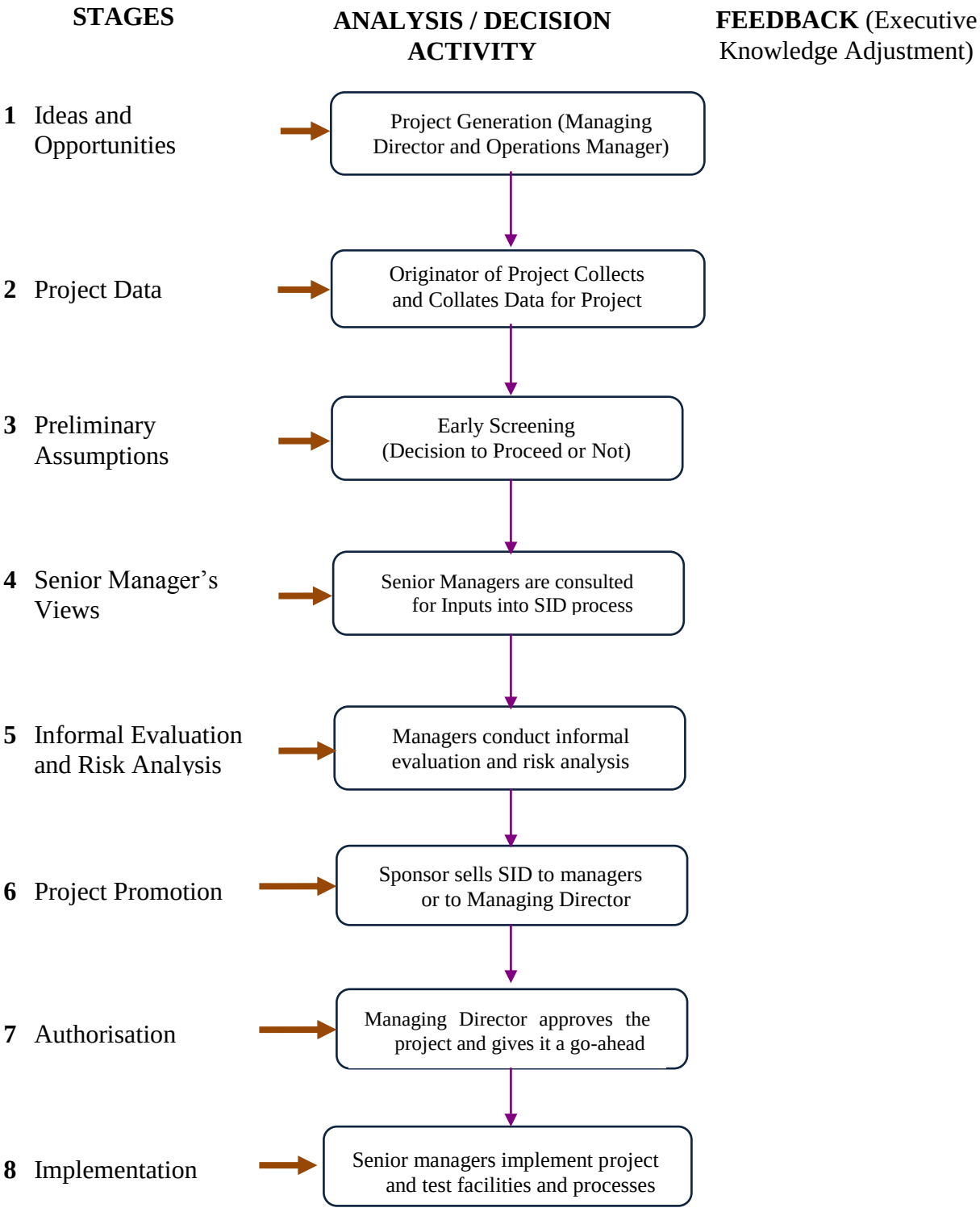
Stages of SIDs

Complexity: The SID process in HEALTHCARE Ltd was simple and although not documented, the managers could identify eight key stages that the process went through (**Figure 5.6**). Corresponding to the stages identified in Harris (1999), the eight stages are similar to some of the Harris' stages; though Harris' stages related to a much bigger firm and any difference could be explained by contextual factors.

The first stage of the SID process identified by the three managers was *generation of ideas and opportunities*. There were two sources of ideas and opportunities: the MD and the Operations Manager and his team (the sponsors of the SIDs). Then in the second stage, the Managing Director or the Operation Manager's team collected all the *data* related to the *project* that they could come across. After the data had been collected, it was collated and in the third stage the sponsor(s) formulated *preliminary assumptions* on the project ready for presentation to the middle (senior) managers. The MD usually presented only those assumptions that he doubted so that the managers could give their views and if necessary come up with detailed assumptions. Formulation of preliminary assumptions for projects from the Operation Manager and his team usually involved all the members of the team (middle managers). The team would meet frequently to discuss the projects. In the fourth stage the sponsor(s) presented the preliminary assumptions to the managers/MD in order to solicit their/his views of the project. For the projects from the MD, depending on the project, not all the assumptions were presented to the managers. In addition, the presentations frequently took a very informal nature. The managers expressed their views, normally informally, and where applicable passed the project to the next stage.

Figure 5.6

Strategic Investment Decision Process at HEALTHCARE Ltd – New Site, New Market, Acquisition of Business Assets



In the fifth stage the managers conducted an *informal evaluation and risk analysis*. The managers evaluated the project or part thereof as the case may be. They identified all the risk that they believed could be associated with the project. Probable ways of managing the risk identified were also devised at this stage. This was the stage at which the managers drew deeply on their managerial and technical experience, and where necessary consulted external parties. At this stage the managers also got specifications of the facilities or assets required for the projects and quotes from different potential suppliers. The analysis was often done in a very informal setting and the process was rarely documented. The result of the evaluation and risk analysis were included in a report (where the MD had requested one or where the SID team needed to put up a case for the project). Next in the sixth stage (*project promotion*) two things happened. Where the project originated from the MD, the managers would inform him of what they had found. In case the project data indicated that the project was not worthwhile; they managers informed the MD and sought reassurance from him before they implemented the project. On the contrary, where the project originated from the SID team, the team persuaded the MD that the project was worth undertaking.

In the penultimate stage the Managing Director *approved* the project and *authorised* the managers to spend the fund budgeted for the project. Finally in the eighth stage, the project was implemented in line with the budget. The project or the process was also tested for proper functioning and faults rectified and that marked the end of the SID process.

Knowledge Adjustment: According to the managers, apart from routine audits of the company, HEALTHCARE Ltd never conducted any project specific post-completion evaluation. Lessons learnt during the SID process were also not fed back into the process. However, the individual managers involved in SID making could have enhanced their managerial experience of the process. The SID was rarely referred back to prior stages, and it was not uncommon to find managers making the same mistake in the next SID.

Hierarchy of Managers Involved

Selection of Managers Involved: Overall, managers in HEALTHCARE Ltd got involved in the SID process to widely varying degrees. The involvement of internal managers depended on the discretion of the MD, who controlled decisions within the company, and the Operations Manager. The MD and Operations Manager were the sources of all investment ideas in the company and chose the managers they wanted involved. For the investments that originated from the MD, involvement of the middle managers was unpredictable: where he decided to get the managers involved, they would be involved. The stage of the SID process at which the managers got involved also depended on the MD. The managers then decided whether it was necessary to consult externally or not. Commenting on his involvement in the one of the projects that originated from the MD, one of the managers said:

> "We are only involved in the middle, although ideally we should be more involved from the inception to the end of the project. For example for the project in Africa, we were only involved during the implementation phase, when we were asked to go and make sure that the implementation was progressing smoothly. At such a stage you cannot make any positive impact on the project. Nonetheless, as I mentioned earlier, we have been working for this organisation for a very long time, so irrespective of the degree to which you are involved, you still want to see it succeed and as a result you try to give the project your best." (*MANAGER H1*)

In contrast, for the investments originating from the Operations Manager, all the middle managers became involved albeit to varying degrees: the degree of involvement depended on the technical expertise and experience of the manager concerned.

Profile of Managers Involved in SIDs: Few of the managers within HEALTHCARE got involved in the SID process. The MD, Operations Manager, IT Manager, and Financial Controller got involved.

In addition, external managers from supplier organisations, customer organisations, financing organisations, and at times government agencies got involved. The externals included finance managers, marketing managers, sales managers, and business

development managers. They were usually consulted about the technical details of equipment, terms of sales, and the terms the financier would offer for financing such projects. The government agencies were consulted about compliance requirements.

Group Decision Support

Software: HEALTHCARE Ltd used, though very rarely, spreadsheet models.

Function: Very occasionally used to facilitate the SID process. The company did not apply any sophisticated evaluation technique and there was very little use of any decision support software, whether general or tailor-made. The managers relied more on *cognitive heuristics* (instinct and industry knowledge) to support their judgement.

5.5.3 Managerial Judgement

Managers in HEALTHCARE Ltd exercised their managerial judgement frequently when called upon to participate in projects. They often exercised managerial judgement based on minimal information about the project and their judgement was significantly influenced by psychological factors. They were also involved in group decisions and were required to assess risk and expected returns of the projects they became involved in.

Psychological Influences on Judgement

Knowledge and Experience: The managers used various aspects of human knowledge and experience to aid managerial judgement, and these influenced the SID process significantly. The professional backgrounds of the managers, their managerial experience, and technical knowledge greatly influenced the SID. Knowledge of strategy formulation and inner workings and processes within HEALTHCARE Ltd, and knowledge of competitors also influenced the SID, though to a lesser degree. Finally, the SID was influenced by knowledge and experience of other managers involved in the SID process to a limited degree.

Managerial experience was extremely important during the SID process but *knowledge of strategy formulation in HEALTHCARE Ltd* and *competitors* were of limited importance.

> "Most of the managers got involved in the middle stages. They don't really get involved in all the stages, which are taken care of by the MD. Therefore, when we probably get involved, we would have minimal information about the project; and because the information presented to you is the very minimal, you draw heavily on your managerial experience to make judgements about the project. Nevertheless, you occasionally rely on knowledge of strategy formulation in the company and knowledge of competitors." (*MANAGER H1*)

Anchoring and Adjustment: Managers in HEALTHCARE *compared and contrasted new projects with similar projects they were previously involved with*, when they had the opportunity to get involved in the SID process.

> "When we get to know about a project, the first thing we do is to compare and contrast it with previous projects. This allows us to form an opinion on the manner in which it would be carried out. The American project started the same way as the African project and when we compared and contrasted the two, we realised that the project was following the same pattern. We then quickly identified what should be avoided from then onwards in order that the project does not fail like the African one." (*MANAGER H1*)

The managers were also involved in a lot of *informal discussions and interactions with other managers involved in the SID*. In addition, *views of the MD* considerably influenced their managerial opinions during the SID.

Availability: More often than not limited information on the project was made available to managers, in particular in the case of SID originating from the MD.

Reaction to SID Information

Requirement for Presentation of SID Information: Within HEALTHCARE Ltd., information on the SID was presented in an off-the-cuff manner. This approach had considerable impact on the SID:

> "The project is talked about in a very informal way and most of the opinions you put forward are often based on how you visualise the project, how you think it would work out. Again this would draw on your experience and professional background. The opinions would be based on prior similar experiences; and how you deal with people ..." (*MANAGER HI*)

Most of the processes within HEALTHCARE Ltd. were not formalised.

> "It is a very informal show. It is not as if someone is calling a meeting to say I have an idea:
> - What do you make of it?
> - Should we weigh the merits and the demerits?
> - Do you have an idea?
>
> No it is not like that at all." (*MANAGER H3*)

Information Emphasised: The interviewees in HEALTHCARE concurred that no information was emphasised during the SID process.

Team and Group Processes

Group Decisions: There were two angles to group decisions in HEALTHCARE Ltd. For the investments originating from the MD, it was not an issue. The projects were imposed on the managers and they had to follow what the MD wanted.

> "Because of the powers of the MD, disagreement is not very evident, because people don't want to be seen as disagreeing with the MD. You don't want to be that guy who is not on the side of the MD, therefore disagreement is not very evident. (*MANAGER H1*)

> "You are allowed to say whatever you want to say but whether the reactions of the MD will encourage you to do that in the future, is a different ball game altogether. I would personally say, from my experience, that the reactions and actions of the director do not encourage us. Of course no one is going to stop you from putting across your views, but whether the MD takes it on board or not tells you what to do in the future. I would say that the actions and reactions of top management do not encourage meaningful discussions of the investments." (*MANAGER H3*)

> "We don't really have a situation where you would discuss issues until you reach a compromise, because of the fact that you have this one individual who is always masterminding the whole project. There is no room for discussions, it is like Soviet Union; there is only room for one thing, support. In such a situation you can only advise. To me it is just like a typical family business." (*MANAGER H2*)

On the contrary, the Operations Manager encouraged the managers to form SID teams for his SIDs, and he facilitated meaningful discussions of the projects. For these projects, managers brainstormed and both formally and informally discussed what would work and what would not, and reached a consensus on the risk associated with the projects and

decided whether to abandon or go ahead with the projects. Managers used *brainstorming* considerably during these SIDs. In a similar way *managers who respect superiors' opinions* and *managers who are socially compatible* were also considerably important to gaining consensus. In contrast, *managers trained in negotiating skills* were not important in gaining consensus. Managers did not find *personal agendas* problematic during the SID process. However, managers differed on the importance of *managers with very different skills* to gaining consensus. Some managers found them important, while others did not find them important. The importance of this aspect appeared to be linked to the type of SID concerned.

Group Socio-political Process: At HEALTHCARE Ltd, the MD was the dominant manager, and most of the key investments the company undertook were initiated by him. The MD required that *an individual to champion and be responsible for the SID*. The requirement emerged because there were two sources of investment ideas, and the MD would champion and be responsible for investments he originated, while the Operations Manager would champion and be responsible for the investments that his SID team came up with.

Due to the informal nature of the SID process at the company, the managers got involved a lot in corridor meetings and internal lobbying. One of the managers described the nature of this informal process:

> "It is like people trying to lobby in parliament really, I do think it is like the politics which happen in any organisation, it does happen in this organisation as well, small as it might be. Most of the times, we lobby our colleagues so that we can win them over, and with a bigger vote you can push your ideas through. So we do engage in some corridor lobbying every now and then: though I don't know how effective it is. (*MANAGER H3*)

People also *formed temporary alliances or subgroups for the purpose of the SID* only to a limited extent.

> "It is not very evident, but you do have people grumbling in the background if they are not happy with the whole idea. But again that is quickly overridden by the fact that the whole show is dominated by one man. So you can express your unhappiness or your dismay quietly but that is how far it goes because whatever the MD says is final. (*MANAGER H1*)

Assessment of Risk and Return

HEALTHCARE Ltd did not have formalised methods for assessing the balance of risk and returns during the SID process. It was not a company requirement to assess the risk associated with a project.

> "We are not formally required to conduct risk analysis: though my colleagues and I carry out risk analysis informally. (*MANAGER H3*)

Accordingly the company did not maintain any formal register of risk that had been identified. The reports the managers occasionally made to the MD when called upon to get involved in a project; however, had specific sections on associated risk, which the company at times use as a checklist of risk.

> "We each have a risk register in our 'individual natural hard disks' which we carry along with us every where. If it crashes there will be nothing for others who will follow to rely on. It won't help because if we left the company, then there is nothing to help new managers who would join the company. (*MANAGER H2*)

Risk Evaluation Techniques: For the projects that originated from the Operations Manager, the team endeavoured to identify all possible risk associated with the projects and conducted a thorough 'walk through' risk analysis. In addition, for the other projects, they attempted to identify as far as possible the risk involved, even when the project is already being implemented.

Techniques for Evaluation of Expected Returns: HEALTHCARE Ltd did not have a hurdle rate and did not appraise projects with a specific minimum expected return in mind. To the company, achieving a project return higher than a specified figure was not the primary aim.

> "If it was, I think we would have been more successful in various areas than we have been. (*MANAGER H3*)"

It followed that the company also did not use *evaluation of expected outcomes (based on probabilities or likelihoods of alternative outcomes)* to incorporate risk associated with a project. There was often no return to apply this approach to.

Industry Rule of Thumb: However, all three managers used *industry's rule of thumb* considerably and had complete access to *financial projections*. In relation to use of *industry's rule of thumb*, one of the managers said:

> "Because we do not live on an island, sometimes you have to look at the way people have done things and basically just adapt that to your company – benchmarking. I think we do that a lot; if we did not, we probably would not be where we are today." (*MANAGER H1*)

Risk Profile of Past Projects: Managers in HEALTHCARE rarely *compared the risk associated with the SID with risk profiles of past projects* during the limited risk assessment.

> "If we did that, we probably would not be in most projects that we are currently involved in. I don't think that we got into those projects for financial reasons. People have various reasons why they invest; some people can invest for charitable or ethical reasons. Unfortunately the reasons why the company invested in those projects are not known to me. I believe that some of the investments were not for profit reasons." (*MANAGER H1*)

> "Comparing with risk profiles of past projects could do the company a lot of good. For instance, we have invested in Africa and currently we are investing in America. We could be using the experience from Africa to help us avoid similar risk in America if we had compared the risk profiles. Sometimes you find us making the same mistakes that we made in Africa in the current project." (*MANAGER H3*)

5.5.4 Case Summary

The findings from HEALTHCARE Ltd based on the three-part analytic framework in **Figure 5.1** is summarised in Tables **5.10** and **5.11**. **Table 5.10** summarises the contextual factors that were operational in the company and the SID process, whilst **Table 5.11** summarises the factors of the nature of managerial involvement in SID. These factors were classified as *enhancers/enablers* and *inhibitors*: a classification which was based on the researcher's interpretation of the evidence gathered during the study.

For example, MANAGER H3, while commenting on the group decision said:

> "You are allowed to say whatever you want to say but whether the reactions of the MD will encourage you to do that in the future, is a different ball game altogether. I would personally say, from my experience, that the reactions and actions of the director do not encourage us. Of course no one is going to stop you from putting across your views, but whether the MD takes it on board or not tells you what to do in the future. I would say that the actions and reactions of

> top management do not encourage meaningful discussions of the investments." (*MANAGER H3*)

The researcher interpreted this to imply that the fear or respect for the MD led to Moses factor, constrained managerial judgement and discouraged managerial involvement in group process during SIDs.

Table 5.10 – Summary of findings (contextual factors and SID process)

Contextual Factors	SID Process

• Operating context
  ○ Medium-sized company
  ○ Zeus organisational culture
  ○ Autocratic management style
• Strategic direction
  ○ Invest in diversification and growth
  ○ Organic growth strategy
• Industry factors
  ○ Contracts with the NHS, expanding overseas
  ○ Government investment in the sector
  ○ PCTs required to manage funds better
• Typology of SIDs
  ○ Development SIDs – new market development, new site development, new technology and new business assets
• Profile of managers
  ○ Decision makers' characteristics
  – middle level managers – managers of functions
  – various educational background including management, accounting, business technology, engineering
  – most worked for the company for more than 10 years
	• SID stages
	  ○ Simple, informal and not documented process
	  – eight identifiable stages
	  ○ Knowledge adjustment
	  – no formal knowledge adjustment mechanism
	• Hierarchy of managers involved
	  ○ No formal SID teams
	  ○ Selection of managers involved
	  – involved by virtue of being:
	  • chosen by the MD or Operations Manager
	  • experts from supplier and financing organisations and government
	  ○ Profile of managers involved
	  – various functional titles
	  – expert knowledge e.g. engineers, compliance with government regulations
	• Group decision support
	  ○ Software – generic Microsoft Excel Spreadsheets
	  ○ Function – occasionally used to facilitate SID

In contrast, when MANAGER H1 commented on the informal processes that were employed during SID making forcing managers to employ intuitive judgement:

> "The project is talked about in a very informal way and most of the opinions you put forward are often based on how you visualise the project, how you think it would work out. Again this would draw on your experience and professional background. The opinions would be based on prior similar experiences; and how you deal with people ..." (*MANAGER HI*)

The researcher interpreted this to mean that informal and less bureaucratic processes enhance/enable managerial judgement during SIDs. All the factors were analysed in a similar way and **Table 5.11** contain the result of this analysis.

Table 5.11 – Summary of findings (nature of managerial involvement)

Managerial Judgement (Nature of Involvement)	
Enablers	**Inhibitors**
• Psychological influences on judgement	• Psychological influences on judgement
○ Knowledge and Experience – knowledge of industry/competition, inner workings and strategy formulation – managerial, professional and technical experience – considerable use of brainstorming	○ Knowledge and Experience – *no evidence of inhibitors*
○ Anchoring and Adjustment – comparison with past	○ Anchoring and Adjustment – MD's control means own managerial judgement is stifled
○ Availability – limited access to SID information encouraged intuitive managerial judgement	○ Availability – limited access SID information
○ Other – informal discussions and interactions	
• Reaction to SID information	• Reaction to SID information
○ Requirement for presentation (structuring) of SID information – 'off the cuff' presentation means managers were forced to use more cognitive heuristics (mental pictures)	○ Requirement for presentation (structuring) of SID information – MD's views dominated
○ Information emphasized – no specific information emphasised (managers decide which information to present)	
• Team and Group Processes	• Team and Group Processes
○ Group Decisions – *no evidence of enhancers*	○ Group Decisions – managers who are socially compatible – managers who respect superiors' views – no diversity of skills in the SID team – no negotiating skills in the SID team – MD's imposing behaviour, means managers toe the line
○ Group Socio-political Process – *no evidence of enhancers*	○ Group Socio-political Process – temporary alliances rarely formed – only one view (MD's) counted – consensus achieved by decree
• Assessment of Risk and Return	• Assessment of Risk and Return
○ Risk evaluation techniques – 'walk through' risk ana;lysis	○ Risk evaluation techniques – *no evidence of inhibitors*
○ Techniques for Evaluation of Expected Returns – *no evidence of enhancers*	○ Techniques for Evaluation of Expected Returns – projects not appraised with a specific minimum return in mind
○ Industry Rule of Thumb – use of industry rule of thumb to provide benchmarks	
○ Risk Profile of Past Projects – comparison with individual managers past experience	○ Risk Profile of Past Projects – no record of past risk profiles to use

5.6 Case VI – CAMERA Ltd.

CAMERA Ltd was a private company that could be classified as a 'medium enterprise' under the Companies Act 1985 (as amended) criteria for classifying companies. Data analysed in this section included the questionnaire, interview transcripts, information contained in internal company documents and publicly available documents.

5.6.1 Contextual Factors

The company was founded in the 1890s and has produced movie camera lenses since then. It was a subsidiary of a company that was taken over, in the 1940s, by a public company to which the movie camera lens business was not a priority. The company was considered peripheral to the Group's core activities and left to slide, and had completely run down and nearly closed by the early 1990s. It became independent when it was bought by the present owners in the late 1990s. The new owners invested heavily in the company and set it on the road to recovery. In the early 2000s CAMERA Ltd won a Primetime Emmy Award for Outstanding Achievement in Engineering Development; and the Queen's Awards for Enterprise and Innovation.

Operating Context

Organisational Culture: The Company was a leading camera equipment producer. All the company's investments were made to support shop floor innovations. There was high level of innovations and creativity as the company designed, produced and marketed 'rare' movie camera lenses. Talent creativity, innovations and new intuition are features of the *Athenian culture*.

The chairman of the company was the majority shareholder with six other minority shareholders. This is indicative of a *Zeus culture*, however the chairman also doubled as the Sales Manager and while working in that capacity reported to the CEO. Power did not therefore lie with him, and a culture where power does not lie at the top not at the centre is Athenian.

The interviewee while describing the SID process at the company commented that:

> "While we have management meetings in a formal sense every one week or two weeks, it is a continuous dialogue of what is going on and what we have to do. If we need to have meetings to make a decision, we just do it; unlike in a logical operation where it is more formalised and you have to arrange people's diaries. Our company is small and we can do things far more ad hoc or nimble in order to be more effective."

This implies that there were few routines, and control and systemisation were minimal. These are facets of the Athenian culture. The organisational culture of CAMERA Ltd was therefore a mix of *Athenian* and *Zeus*.

Business Design: The Company operated a workshop in the UK where the camera lenses were made; and had dealers and distributors globally, in Austria, Canada, China, France, Germany, Japan, Mexico, Russia, South America, United Kingdom, and United States. The company's movie camera lenses were available for rental globally: in Argentina, Australia, Austria, Belgium, Brazil, Canada, Caribbean, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Indonesia, Italy, Japan, Kazakhstan, Korea, Lebanon, Malaysia, Mexico, Netherlands, New Zealand, Norway, Pakistan, Philippines, Poland, Portugal, Russia, Serbia and Montenegro Singapore, Slovenia, South Africa, Spain, Sweden, Taiwan, Thailand, Turkey, United Arab Emirates, United Kingdom, and United States. 90% of the turnover was revenue from exports of the camera movie lenses.

Management Style: In the company, there was little interference from top management. Employees were empowered and motivated to do their work. The company encouraged all the employees (particularly technical employees) to get involved in generation of ideas for investments. In addition the CEO described his work as:

> "I have a precision gearbox downstairs and I am the lubrication.' I keep everything moving smoothly, and working properly."

All these indicate that employees are left to tackle their work, probably because they are highly technical. The management style exhibited by these features is the *laissez-faire* style.

Strategic Direction

Investment Philosophy: CAMERA Ltd's investment philosophy was guided by the principle: *'do not do what everyone else can do; go out for something new'*. The company's philosophy was to invest in quality and exacting tolerances. This had been the philosophy since it was founded in the 1890s. Individual craftsmanship was the key goal for the company, which designed, produced and marketed 'rare' movie camera lenses.

Investment Strategy: Overall, the company's strategy was to mix the best traditional lens making techniques with new innovative ideas to make optics and lenses for the motion picture industry. The company got information from the market, analysed it and developed an investment strategy to operate in the market, based on the above philosophy. The interviewee used the then digital revolution in the film industry to illustrate this strategy.

> "Basically the market drives our strategy. We obtain information on what the market wants, analyse the information, build business models to facilitate the analysis and decide how we would respond. For instance, in the recent past, information in the market indicated that film was dying, the new digital technology was taking over; and our competitors were beginning to manufacture lenses for this new digital revolution. We analysed the information and built models to facilitate further analyses, and we realised that, yes the digital era had arrived but until digital was as good as films, it would never take over. We therefore made a deliberate choice not to diversify into digital."

Accordingly, while CAMERA's competitors diversified into production of digital camera lenses because they expected the digital revolution to move quickly in terms of quality, CAMERA did not. The technology however became compatible with film cameras, and the company was able to supply the digital as well as that for the film camera markets. Nonetheless, the company also aimed to produce and supply precision optics for consumer-level digital video camcorders. The company hoped that this would provide an opportunity to integrate its strengths as world leaders in movie camera lens production to produce a new exciting and cost-effective product.

Industry Factors

Organisation's Position within the Industry: CAMERA Ltd was a leading company in the camera equipment sector. It operated in the film industry, which was a very small market place. Although everybody think that the film industry is big, the movie camera lenses business is actually a very small business. There were only three manufacturers in the world that made lenses for the film industry. Two of the three manufacturers were multimillion dollar turnover companies, but only a small part of their business was in making camera lenses for the film industry. CAMERA Ltd was one of the three and was dedicated to serving that industry.

SID Trend within the Industry: The film industry was facing a digital revolution and most companies in the camera equipment sector were investing to meet the digital demand. The main feature of the film industry could be illustrated using a 'price-volume triangle'. At the top end of the triangle, there is movie-making with the highest cost/price, least number of sales and least market spread; while at the base of the triangle, there is the television with lower costs/prices and far wider market spread. CAMERA Ltd was happy to maintain a position, at the top of the triangle, of low volume of high quality, which would sell at the highest prices. The managers of the company believed that as any market diminishes, through lack of funds, people would still preserve the quality part of the market, i.e. the base of the triangle would disappear, not the top end.

Typology of SID

All the company's investments were made to support the company's shop floor innovations. This was in line with the company's overall strategy of maintaining and improving quality, where it bought capital equipment to enable the company to maintain and improve the quality of its products. The main types of SID made were therefore site development and development of *advanced manufacturing technology* (AMT). These SIDs have been classified, for the purpose of this study, as *development* SIDs. The interviewee based his responses on AMT.

Profile of Participating Managers

The characteristics of the manager who participated in the study included:

- Level of management:
  - senior level manager – CEO
- Educational background:
  - engineering
- Employment record
  - worked for the company for more than 21 years

The respondent/interviewee had worked in another company for approximately 10 years before joining CAMERA Ltd, and was involved in all SIDs within the organisation. All quotes used in the following analysis are from this interviewee.

5.6.2 Nature of SID Process

The SID process within CAMERA Ltd was very informal and has been analysed in three parts: stages of SIDs, hierarchy of managers involved, and group decision support.

Stages of SIDs

Complexity: The SID process was very simple and ad hoc, and according to the interviewee:

> "While we have management meetings in a formal sense every one week or two weeks, it is a continuous dialogue of what is going on and what we have to do. If we need to have meetings to make a decision, we just do it; unlike in a logical operation where it is more formalised and you have to arrange people's diaries. Our company is small and we can do things far more ad hoc or nimble in order to be more effective."

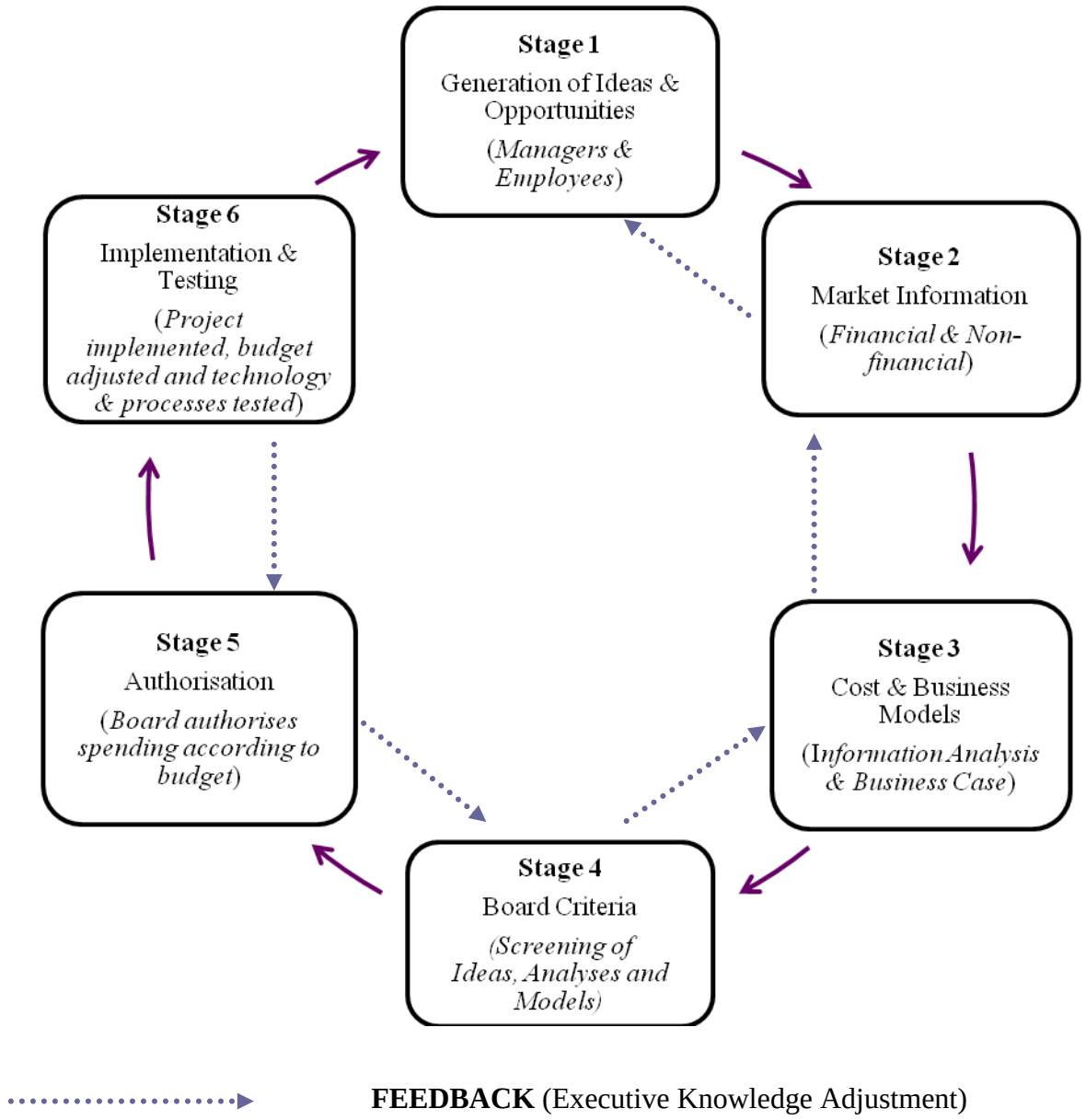
He described the process as a 'circle', where the tail meets the beginning. He identified six stages (**Figure 5.7**), which compared to Harris' (1999) model appears to be an abridged version.

The first stage of the SID process entailed *generation of ideas and opportunities*. At this stage the Managers or employees came up with investment ideas and probable investment

opportunities. The company was always in a development cycle and to a limited extent diversifying the business. Therefore the idea(s) did not necessarily link to anything previous. However, the strategies within the diversification agenda were significantly based on something the company had done before.

Figure 5.7

Strategic Investment Decision Process at CAMERA Ltd – AMT



After conceiving the investment ideas, the company collected *information from the market*. It looked at the market to find out if new technology has become available, or if the market has come up with new ideas that kept the wheel turning. The managers believed that if products were more readily available in the market, they would sell at a discount. Therefore before it embarked on any new project the company scanned the market for all available information, both financial and non financial.

In the third stage, the company *built a model* to test the ideas that have been conceived in stage one against the information from the market. The company used Morgan's Cost Model, to ensure that availability of the products could be restricted in order to maintain the price. At this stage the managers carried out a cost analysis to determine whether the product would be able to return sufficient margin, given the target price that the market was most likely to offer. The company operated in a finite market and when making any strategic investment decision, the managers deliberately attempted not to saturate the market too quickly, and not to enter the market too late. Business models were therefore created to ensure that the company had the right product at the right time in the right quantity. Sometimes the company regulated the delivery of the products to maintain the price. This was also the stage at which risk analysis was undertaken.

The fourth stage was where the managers presented the idea together with the analyses and the models prepared in stage three to the *Board*. The managers and the Board exhaustively discussed the idea, analysis and models, and then decided whether to proceed with the investment or not. This was done to ensure that the project was in line with the company's overall objective of 'sustaining turnover in order to sustain development' and 'sustaining development in order to sustain turnover'; based on the principle '*do not do what everyone else can do; go out for something new*'. If the Board was convinced that the project would meet the company's overall objectives of sustaining development and turnover, it, in the fifth stage, *authorised* funds to be spent on the project based on budgets. The project was then *implemented and tested* in the sixth and final stage. The employees implemented the

projects and tested the technology or manufacturing process to ensure that it is operating well, and that it had maintained or improved quality of the products.

Knowledge Adjustment: Apart from the routine annual audit the company did not conduct a project specific post completion audit. The testing of the technology or manufacturing process sufficed and whatever was learnt during each of the six stages was fed forward/back to facilitate the next process/previous stage. In addition as the interviewee mentioned in the above quote, there was continuous dialogue during the SID process. Such dialogue ensured knowledge adjustment.

Hierarchy of Managers Involved

Selection of Managers Involved: In CAMERA Ltd, multiple managers and employees were involved in the SID process. The company encouraged all the employees (particularly technical employees) to get involved in generation of ideas for investment decisions. This was probably because most of the investments undertaken by the company are about shop floor's innovations. All the internal managers got involved but not many external managers.

The CEO was involved in all the stages of SID because the company is relatively small, and the managers and the Board worked very closely. He was the overall manager in charge of all investment projects and played the role of motivating the SID team, organising the SID meetings and together with the Board, making the final decisions. A lot was, however, accomplished through ad hoc processes.

Profile of Managers Involved in SIDs: The functional positions of the internal managers involved were: CEO, Finance Manager, Operations Manager, Production Manager, Sales Manager and Chairman. During the SID process, the company also involved experts. These included managers from supplier organisations to determine specifications of the machinery, the capabilities and probable provision of training. Managers from financing

organisations were also involved in financing decisions. The company used external parties to manage the projects and consulted experts on Health and Safety issues.

Group Decision Support

Software: CAMERA Ltd used spreadsheets (Microsoft Excel) and critical path analysis software to support SID decision. It did not have any tailor-made decision support software.

Function: Microsoft Excel was used to build business and cost models, and conduct analysis of market information.

In summary, the SID process at CAMERA plc was very short with only six identifiable stages. The employees were encouraged to come up with investment ideas and the process was kept deliberately informal to make it more effective.

5.6.3 Managerial Judgement

During the six stages of the SID process in CAMERA Ltd, managers exercised managerial judgement. Various factors influenced the exercise of managerial judgement and managers' views were altered by continuous discussions, both formal and informal among the managers, with the Board members, as well as with the employees.

Psychological Influences on Judgement

Knowledge and Experience: Knowledge and experience within CAMERA Ltd was a very important area. The company's success was based on the passing down of the knowledge and skills of lens manufacture over more than 120 years, and the SID process was experience driven. Managers used intuition guided by gut feel to the highest degree in exercising managerial judgement during the SID process. The company defined *intuitive* as "drawing on the learning you have already made", and *gut feel* as "a guess based on hunches or flashes of ideas".

Managerial experience was extremely important during the SID process, while *knowledge of strategy formulation in CAMERA Ltd* was considerably important. Experience, whether having managers with similar experience, or managers with different experience, or the managerial experience of the manager involved, had a very significant influence on managerial judgement. As the interviewee put it:

> "If we are considering development of a manufacturing process, and we have gathered information on the probable target market price, we would know very roughly from experience what it will cost and therefore whether it will make a sufficient margin."

In contrast, *knowledge of competitors* was of limited importance during the SID process. This is interesting given that CAMERA Ltd is one of three players in the industry and you would expect stiff competition among them.

Anchoring and Adjustment: The SID process in CAMERA was ad hoc and managers anchored their judgement on *informal discussions and interactions with managers involved in the SID process* to a considerable extent.

Since most of the company's SIDs were novel, managers did not anchor their judgement on *comparison of new project opportunities with similar projects the managers were involved with*. The *views of top management* did not apply to the managers at CAMERA Ltd at all. Top management also had other functions within the lower echelon.

Availability: Market information, which was gathered in stage two of the SID process, was made available and easily accessible to all managers and employees involved in the process. The information included *financial projections*.

Reaction to SID Information

Requirement for Presentation (Structuring) of SID Information: CAMERA Ltd required managers to obtain and present detailed and comprehensive market information (both financial and non-financial) relevant to the project.

Information Emphasised: Managers were required to include business costing models analysing the market information in their presentation to the Board for discussion. The managers realised that where detailed information and analysis of the project were included in the presentation, the final decisions were reached far more quickly, speeding up the SID process.

Team and Group Processes

Group Decision: Managers in CAMERA Ltd were involved in group decision and did not have much problem in reaching consensus since the company's philosophy of 'no shocks' encouraged open dialogue. *Managers with different skills*; as well as managers who speak their minds forthrightly; managers with similar experiences; and managers with different experiences were extremely important in gaining consensus. In addition, *managers trained in negotiating skills* were considerably important in gaining consensus. The company also found *personal agendas* considerably problematic when managing consensus during the SID process.

In contrast, *managers who respect superiors' opinions* and *managers who are socially compatible* were of limited importance in gaining consensus. The use of *brainstorming* during the SID process was also limited, though the managers found it very useful when discussing technical issues.

> "When dealing with a technical issue during the SID process we use brainstorming. We go to the Board room, post it on the wall, come up with alternatives and eliminate the ones that appear unworkable using gut feel."

The managers found they were able to reach the correct decision more quickly when they used brainstorming.

Group Socio-political Process: CAMERA Ltd required *an individual manager or employee to champion and be responsible for the SID*. The champion was responsible for the project from conception of idea to implementation and testing. In addition, the ad hoc nature of the SID process meant that *people also formed temporary alliances and subgroups for the purpose of the SID* to a considerable extent.

Assessment of Risk and Return

Risk analysis and evaluation of expected returns in CAMERA Ltd were not distinct stages of the SID process. They were conducted at the third stage of the process when analysing market information and building up the business cost models.

Risk Evaluation Techniques: Managers in CAMERA Ltd used intuition guided by gut feel to assess the risk associated with the SID.

Techniques for Evaluation of Expected Returns: The managers *evaluated expected outcomes based on probabilities or likelihood of alternative outcomes*. They used the target price that the market was most likely to offer and Morgan's Cost Model to determine the viability of the investment.

Industry Rule of Thumb: *Industry rule of thumb* was used to a considerable extent during the SID process. According to the interviewee, the industry's rule of thumb was experience driven and mainly used for financial modelling during the SID process.

Risk Profile of Past Projects: The managers did not use *comparison with risk profiles of past projects* at all during the process. According to the interviewee:

> "The past projects we were involved with were to do with investing in facilities and equipment to bring the company up to date, following a 10 year period of undercapitalisation due to the owners' lack of investment in the company. They are not very comparable with the projects we got involved in later, which were to do with investing in new facilities, new technology, and new manufacturing processes."

5.6.4 Case Summary

The findings from CAMERA, based on the three-part analytic framework in **Figure 5.1**, is summarised in Tables **5.12** and **5.13**. **Table 5.12** summarises the contextual factors that were operational at the company and the SID process, whilst **Table 5.13** summarises the factors of managerial involvement in SID.

Table 5.12 – Summary of findings (contextual factors and SID process)

Contextual Factors	SID Process

• Operating context
  o Medium-sized company
  o Mix of Athenian and Zeus organisational culture
  o Laissez faire management style
• Strategic direction
  o Invest in quality and exacting tolerances
  o Mix best traditional techniques with innovative ideas
• Industry factors
  o Top movie camera lens producer
  o Digital revolution
  o Quality
• Typology of SIDs
  o Development – AMT
• Profile of managers
  o Decision makers' characteristics
  – senior level managers – CEO, Chairman, Sales Manager, Operations Manager, Finance Manager
  – employees – engineers
  – educational background – mainly engineering
  – most worked for the company or within the camera equipment sector for more than 21 years
	• SID stages
	  o Simple, informal, not documented process
	  – entire organisation's process
	  – six key stages
	  o Knowledge adjustment
	  – Series of feedback and feedforward loops
	  – Continuous dialogue – tail meets the head
	• Hierarchy of managers involved
	  o No formal SID teams
	  o Selection of managers involved
	  – Multiple managers
	  – Involved by virtue of being:
	  • owner or employees
	  • experts
	  o Profile of managers involved
	  – Various functional titles
	  – Experience (both managerial and industry)
	  – Expert knowledge e.g. suppliers of equipment, project management
	• Group decision support
	  o Software – Microsoft Excel
	  o Function
	  – Analysing market information
	  – Constructing business and cost models

The grouping of the factors follows the numbering of the categories in the template for case-by-case analysis (**Appendix 5**). As the table shows, factors of managerial judgement were classified as *enhancers/enablers* and *inhibitors*. This classification was based on the researcher's interpretation of the evidence gathered during the study.

For example, with regard to psychological influences on judgement – knowledge and experience, the interviewee while commenting on the use of brainstorming said:

> "When dealing with a technical issue during the SID process we use brainstorming. We go to the Board room, post it on the wall, come up with alternatives and eliminate the ones that appear unworkable using gut feel."

The researcher interpreted these to mean the use of brainstorming encouraged managers to use cognitive heuristics and this enhanced their managerial judgement and encouraged involvement in the SID process.

Table 5.13 – Summary of findings (nature of managerial involvement)

Managerial Judgement (Nature of Involvement)	
Enhancers/Enablers	**Inhibitors**
• Psychological influences on judgement ○ Knowledge and Experience – knowledge of inner workings of the company and strategy formulation – managerial, professional and technical experience – use brainstorming ○ Anchoring and Adjustment – *no evidence of enhancers* ○ Availability – access to market information ○ Other – informal discussions and interactions – intuition guided by gut feel	• Psychological influences on judgement ○ Knowledge and Experience – lack of knowledge of competitors ○ Anchoring and Adjustment – novel projects means no comparison with past
• Reaction to SID information ○ Requirement for presentation (structuring) of SID information – no prescribed format for presentation of information ○ Information emphasized – real-time market information	• Reaction to SID information ○ Requirement for presentation (structuring) of SID information – detailed and comprehensive presentation of financial and non-financial market information – presentation of business and cost models
• Team and Group Processes ○ Group Decisions – diversity of skills within the decision making team – managers who speak their minds forthrightly – managers trained in negotiating skills – philosophy of 'no shocks' encouraged open dialogue ○ Group Socio-political Process – formation of temporary alliances – personal agendas considered problematic	• Team and Group Processes ○ Group Decisions – managers who are socially compatible – managers with similar experiences – managers who respect superiors' views ○ Group Socio-political Process – *no evidence of inhibitors*
• Assessment of Risk and Return ○ Risk evaluation techniques – intuition guided by gut fell based on experience ○ Techniques for Evaluation of Expected Returns – simple comparison of target market price with manufacturing costs ○ Industry Rule of Thumb – experience driven industry rule of thumb ○ Risk Profile of Past Projects – *no evidence of enhancers*	• Assessment of Risk and Return ○ *No evidence of inhibitors* ○ Risk Profile of Past Projects – novel projects means no profile of similar past project available

3.1 3.1.1 3.1.2 3.1.3 3.2 3.2.1 3.2.2 3.3 3.3.1 3.3.2 3.4 3.4.1 3.4.2 3.4.3 3.4.4

Another example is psychological influences on judgement – anchoring and adjustment. According to the interviewee:

> "The past projects we were involved with were to do with investing in facilities and equipment to bring the company up to date, following a 10 year period of undercapitalisation due to the owners' lack of investment in the company. They are not very comparable with the projects we got involved in later, which were to do with investing in new facilities, new technology, and new manufacturing processes."

The researcher interpreted this to mean that lack of comparable data to anchor managerial judgement on meant when managers made decisions on these novel projects their managerial judgement was inhibited.

The classification of all the factors contained in **Table 5.13** into enablers and inhibitors followed this line of analysis.

Chapter Six

Cross-case Analysis

Chapter 6

Cross-case Analysis

General Overview

This chapter presents a *cross-case analysis* of the six case companies discussed in **Chapter 5**. Four of the six companies (**I** to **IV**) were large multinational corporations (MNCs), three of which had provided two or more responses to the survey and at least one respondent agreed to a follow up interview. The fourth company was approached by the researcher after the survey and several managers then answered the same survey questions. The other two (**V** and **VI**) were medium sized enterprises (MSEs) where at least one manager agreed to be interviewed and answer the same set of questions as in the survey. Data for the case analysis is therefore taken from the survey questions as well as from the follow up interviews and other company information. In total the data is drawn from 15 survey responses and nine interviews in the six case companies. Interviews were conducted of three Finance Managers, one Director of Finance, one CEO, one Maintenance Manager, one Operations Manager, one Head of Programme Implementation, and one ICT Manager. All the interviewees had worked for their respective organisations and/or within the corresponding sector for more than 10 years.

This chapter follows the structure from **Figure 5.1**, considering the contextual factors, the SID process, managerial judgement and risk-return assessment in SIDs before drawing conclusions on the applicability of the conceptual framework and its use in future SID research.

6.1 Contextual Factors

Table 6.1 summarises the contextual factors in the six companies. It shows the industry sector, size and strategic context of the organisation, the types of SID and the nature of the SID process in terms of the level of formality, the number of stages and the participation of

Table 6.1 – Contextual Factors

CASE	*I*	*II*	*III*	*IV*	*V*	*VI*
INDUSTRY	Steel and Other Metals	Utility	Beverages	Chemicals	Healthcare	Camera Equipment
SIZE	Large group	Large UK division	Large group	Large group	Medium	Medium
ORGANISATIONAL CULTURE	Apollonian	Apollonian	Apollonian	Apollonian	Zeus	Mix of Athenian and Zeus
MANAGEMENT STYLE	Consultative	Consultative	Consultative with element of autocracy	Consultative	Autocratic	Laissez faire
STRATEGIC CONTEXT	In top three steel producers in EU	Leading player in UK energy market	Leading brewer in UK/EU	20% share of world industrial gas market	Contracts with NHS, expanding overseas	Top lens producer for film industry
TYPES OF SID	Mergers and acquisitions (*Asterisk*)	New market and site development (*development*)	New product development (*development*)	New market development (*development*)	New market and site development (*development*)	Advanced technology (*development*)

multiple managers. Cases **I** to **IV** are all very large companies, with annual turnover in excess of five billion pounds and more than 10,000 employees. Cases **V** and **VI** are both medium sized, with annual turnover of approximately five million pounds and more than 60 employees. All operated in a global marketplace and had significant operations and sales to customers overseas.

With the exception of case **V** (founded in the 1990s) all organisations had a long history which tends to influence the organisational culture (Handy, 1995:29–30), but had experienced a merger or other significant restructuring in the 1990s. Cases **II** and **IV** were restructured most recently in 2006. All four very large companies had a hierarchical structure, with a high level of formality. With the exception of case **III** (a brand led organisation with a history dominated by some well known characters in the business, thus elements of autocracy) the large companies would all be considered heavily bureaucratic or rule-bound.

Smaller companies tend to have a dominant character holding the key power position, usually the majority shareholder, who may appear as a Zeus type business leader (Handy, 1995: 40). Cases **V** and **VI** were no exception, though case **VI** also showed signs of a task culture, with high levels of innovation and considerable space for creativity.

Cases **I** and **IV** rely on industrial customers, so are affected by the economics of world manufacturing. Case **II** operates in an energy market regulated by governments, so is influenced by world politics, especially environmental aspirations. Case **III** is a brand leader in the alcoholic drinks market, so is influenced by social trends, for example a decline in beer drinking in the UK. Both cases **V** and **VI** are operating in niche or specialist markets, but **V** is influenced by government health policy, whereas **VI** is technology led. This influences the type of strategic investments being considered. **Section 6.2** explores the SID process applied in the six companies and **Section 6.3** explores the nature of managerial involvement at the different stages in the SID process.

6.2 SID Process

All companies identified at least six stages in their SID process, which were generally well-aligned to the ten stages distilled from earlier studies used to formulate the survey questions (**Chapter 2**, **Table 2.1** p37). As **Table 6.2** depicts, there were fewer stages (six and eight) in the MSEs as we might expect, and more phases in the MNCs (nine in cases **I**, **II** and **IV** and eleven in case **III**). The nature of those stages was similar, but in case **I** more top-down as appropriate for business acquisitions and in case **III** included change management.

SIDs in the large MNCs involved business development managers, not found in the MSEs. Finance managers and directors were involved in SID making in all six cases and operations or production managers were involved in all except case **IV**, though they did involve what they called business unit managers. Project managers were only identified as involved in the SID process in two organisations (**I** and **III**), which may mean the others do not manage the implementation stage of SIDs as 'projects' as defined in project management terms. The cases that involved project managers were acquisitions and new product developments, where change management is either implicit or explicit.

The other participants identified all had technical type roles in cases **I** to **V**. Only case **VI** identified the Chairman as involved in SIDs, which is understandable in a smaller organisation where the Chairman also undertook a sales management role.

6.3 Involvement of Managers in the SID Process

Table 6.3 shows the level of involvement of participating managers, decision support techniques, any variation in the agendas or purpose of internal meetings and the external parties consulted. Whilst the level of involvement varied within and between cases, there was strong evidence for the following agenda areas for internal meetings, which all attempted to:

- gather views (all except Case **VI**)
- evaluate risks (all except Case **IV** attached probabilities)

Table 6.2 – SID Process

CASE	*I*	*II*	*III*	*IV*	*V*	*VI*
SID PROCESS	Bureaucratic, rule-bound Well documented process Formal SID teams				Simple and informal Not documented No formal SID teams	
SID STAGES	1. Company strategy 2. Ideas and opportunities 3. Preliminary assumptions 4. Internal Board views 5. Detailed assumptions 6. Scenario planning and risk analysis 7. Independent arbiter's technical views 8. Group Board criteria 9. Measured outcomes	1. Investment definition 2. Assignment of roles and responsibilities 3. Ascertainment of Approval Body 4. Strategic evaluation 5. Economic evaluation 6. Risk analysis and sensitivities 7. Scheme paper approval 8. Implementation 9. Post investment review	1. Project opportunities 2. Project definition 3. Business case 4. Regional Manager's views 5. Financial data 6. Evaluation and risk analysis 7. Executive Committee's opinions 8. Authorisation 9. Change management 10. Implementation and testing 11. Post completion evaluation	1. Development of opportunities 2. Generation of project data 3. Assumptions 4. Financial Models 5. Investment paper 6. Investment paper's review 7. Project approval 8. Implementation 9. Post completion review	1. Project generation 2. Project data 3. Assumptions 4. Senior managers' views 5. Informal evaluation and risk analysis 6. Project promotion 7. Authorisation 8. Implementation Note: not followed in every case	1. Generation of ideas and opportunities 2. Market information 3. Model building 4. Board criteria 5. Authorisation 6. Implementation
PARTICIPATION **Business development** **Finance managers** **Directors/CEO** **Operations/production** **Project managers** **Other**	■ ■ ■ ■ ■ HR and technical managers	■ ■ ■ ■ ☐ Engineering managers	■ ■ ■ ■ ■ R & D managers	■ ■ ■ ☐ ☐ ICT managers	☐ ■ ■ ■ ☐ IT manager	☐ ■ ■ ■ ☐ Chairman

Table 6.3 – Involvement of Managers in SID Process (level of involvement, meetings and externals consulted)

CASE	*I*	*II*	*III*	*IV*	*V*	*VI*
INDUSTRY	Steel and Other Metals	Utility	Beverages	Chemicals	Healthcare	Camera Equipment
Level of Involvement of participating managers	Varied from minor to significant – roles the managers played depended on the manager concerned, and the formal SID team(s) the manager was in.	Varied from minor to significant – roles played depending on the managers concerned, value of project and required financial returns.	Varied – roles depended on manager and level in the organisational hierarchy.	Varied – roles depended on manager and level in the organisational hierarchy.	Varied – roles depended on the MD's choice, technical expertise and experience of the manager concerned	All managers were encouraged to be heavily involved
Types of Decision Support used in addition to Excel spreadsheets	• Decision trees • Critical path analysis	• Critical path analysis	• Decision trees • Critical path analysis • Tailor-made DSS • Stage-gate navigator process	• Tailor-made DSS • Own Intranet-based system • Specialist support software for risk analysis	None	• Critical path analysis
Variation in Agenda or purpose of Meetings	• Set negotiating strategy	• Allocated responsibilities • Debriefed members	• Established ground rules • Established project ownership • Eased implementation	• Did not attach probabilities to alternative outcomes in evaluating risks	• Did not handle any complexity by constructing models	• Did not identify key success factors or • Gather views from various stakeholders
Externals consulted	• Lawyers • Accountants • Investment Bankers • Stock Brokers • Competition Analysts • Pension Advisors • Target Company • Finance Organisations • Government Departments	Use of external consultants determined at start of the process: • Technical Managers from Supplier Orgs. • Business Development Consultants • IT Consultants Approval required where the cost exceeded £0.7m.	• Suppliers • Legal Counsels • Designers	Apparently none	• Suppliers • Financing Organisations • Government Agencies	• Project Manager • Technical Managers from Suppliers' organisations • Financing Organisations • Health and Safety organisations

- construct models (all except cases **IV** and **V**)
- identify key/critical success factors (all except Case **VI**)
- reach consensus, decide on the desirability of the project and conclude on issues.

All six case organisations used Excel spreadsheets for decision support, though the responses to questions about framing (see **Table 6.4**) showed variation in whose models were used, the managers' own (enhancing/enabling managerial judgement) or prescribed models. Three MNCs and one of the MSEs used project management software for critical path analysis. Cases **I** and **III** also used decision trees. Only Case **IV** was using specialist risk analysis software.

The extent of external consultation varied, but not necessarily with size or any other of the organisational variables. It appears to vary more with the type of project being proposed, with Case **I** (mergers and acquisitions focus) reporting the widest external consultation. Case **IV** did not appear to consult externally, which is perhaps understandable for market development type projects where marketing expertise is available internally.

6.4 Managerial Judgement and Nature of Involvement

Table 6.4 illustrates the types of heuristics or reference points used and the company requirements and processes for presentation of project proposals and reaching agreement. These are broadly categorised into those that may be seen as **enhancing/enabling** (**E**) managerial judgement, drawing on intuition and business knowledge, and those that may be seen as **inhibiting** (**I**) managerial judgement by imposing a prescribed format for decision making information.

One might expect that decision making in the MNCs would be more formalised and therefore inhibiting and that the MSEs would allow more freedom to individual managers to use their judgement and therefore enhancing/enabling. However, the pattern of results does not follow this expectation exactly. Cases **I**, **II**, **III** and **V** appeared to be the most enhancing/enabling in terms of the use of brainstorming (intuition), comparisons with past projects (anchoring and adjustment) and a range of other reference points. Cases **IV** and **V1** produced a more mixed result.

Table 6.4 – Managerial Judgement (Heuristics, Framing and Consensus) in Case Companies

CASE	*I*	*II*	*III*	*IV*	*V*	*VI*
INDUSTRY	Steel and Other Metals	Utility	Beverages	Chemicals	Healthcare	Camera Equipment
HEURISTICS **Brainstorming:** **Comparisons with past:**	Used considerably (**E**) Used considerably (**E**)	Used considerably (**E**) Used considerably (**E**)	Used considerably (**E**) Used considerably (**E**)	Not used (**I**) Used considerably (**E**)	Used considerably (**E**) Very influential (**E**)	Used (**E**) Not used, due to the novelty of projects
Knowledge of: - industry/competition - inner workings - strategy formulation	 - most important - quite important - most important	 - most important - quite important	 - quite important - most important - most important	 - quite important - most important - quite important	 - quite important - quite important - quite important	 - lack of information - most important - most important
Experience of: - managerial - professional - technical	 - most important - most important - quite important	 - quite important - quite important - quite important	 - most important - most important - most important	 - not important - most important - quite important	 - most important - most important - most important	 - most important - quite important
Other influences:	external/independence and cynicism (**E**) wide consultation	knowledge/experience of other managers (**E**) informal discussions	views of top management (**I**) no informal discussions	knowledge/experience of other managers (**E**) informal discussions	limited SID information (**E**)	intuition guided by gut feel (**E**) informal discussions
FRAMING	**ENABLING** • Company emphasized the presentation of real-time information • Company required project data presented in a manner that shows its strategic fit • Managers used own models **INHIBITING** • Presentation of comprehensive evaluations quickened the SID process • Level of scrutiny	**ENABLING** • Variety of acceptability indicators **INHIBITING** • Company provided managers with a standard template for presentation of project information • Lack of knowledge of strategy formulation and understanding of DCF limited wider managerial judgement	**INHIBITING** • Detailed/comprehensive presentation of data analyses evaluations and sensitivity and risk analysis required • Presentation of models analysing the data, financial impact of project, IT impact of project, stakeholder analysis, and cultural assessment required • Use of spreadsheets, project management software and decision trees	**INHIBITING** • Formal and comprehensive presentation of project information, analyses, evaluations, and financial models required. • Mix of own models and group controlled systems • Intranet based procedures manual **ENABLING** • Informal discussions and interactions were vital	**ENABLING** • 'Off the cuff' presentation of information - this appeared to force managers to use more cognitive heuristics (mental pictures) **INHIBITING** • MD's views dominated	**INHIBITING** • Detailed comprehensive presentation of relevant financial and non-financial market information required • Presentation of business and cost models analysing the information required

CASE	*I*	*II*	*III*	*IV*	*V*	*VI*
CONSENSUS	*Mixed Bag: Consensus managed by different managers in different ways.*	*Consensus managed by different managers in similar ways.*	*Consensus managed by different managers in similar ways:* "singular focus, huge team work"	*Consensus managed by different managers in similar ways.*	*Two conflicting management views: – gaining consensus was not an issue (MD) 2 Others – gaining consensus was an issue*	*The company's philosophy of 'no shocks' encouraged open dialogue.*
Important factors in gaining consensus - managers:						
- who are socially compatible (**I**)	not important	most important	quite important	quite important	most important	quite important
- with similar experience (**I**)	……	……	……...	……...	……	most important
- with very different skills (E)	quite important	most important	most important	most important	not important	most important
- who speak their minds forthrightly (E)	……	……...	……...	……...	……	most important
- who respect superiors' views (**I**)	not important	most important	not important	most important	most important	quite important
- trained in negotiating skills (E)	……	most important	……...	not important	not important	most important
Personal agendas considered as problematic (E)	Managers frequently encountered personal agendas, some found them problematic	Managers frequently encountered personal agendas and found them most problematic	Managers frequently encountered personal agendas: most did not find them problematic, but dissenters were isolated	Managers frequently encountered personal agendas and found them slightly problematic	Managers frequently encountered personal agendas but did not find them problematic as only one view counted	Managers frequently encountered personal agendas and found them most problematic
Temporary alliances formed (E)	Rarely occurred	Frequently occurred	Frequently occurred	Never occurred	Rarely occurred	Frequently occurred
Overall, consensus achieved by:	Reaching agreement	Constrained agreement	Constrained agreement	Constrained agreement	Decree	Reaching agreement

The pattern was quite different when it came to the framing of proposals, where cases **II** to **V** more or less conformed to expectations. Case **I** appeared to be far more enhancing/enabling than expected and case **VI** perhaps more inhibiting than expected, though they did use brainstorming in the board room. The contrast between the results for heuristics and framing may be seen as revealing a tension between the formality in the SID process imposed by top management and the preference shown by individual managers for using their intuition and 'gut feel' based on their business knowledge and experience. Having said that, the distance between top management control and managers participating in SID teams is not so great in the MSEs so this distinction is harder to make in cases **V** and **VI**. Case **I** really stands out from the others in this analysis, where both the heuristics and framing appear to enhance/enable managerial judgement far more than in the other MNCs.

The capacity of the organisation to manage consensus seems to be affected by the management style or organisational culture. Cases **I**, **II**, **IV** and **VI** seem to have greater capacity for seeking managers' views about proposals and managing a consensus-seeking process, whereas cases **III** and **V** do not manage by consensus but by a more autocratic process.

The 'no shocks' philosophy found in Case **VI** captures the rationale for enabling managers to use their knowledge and experience in evaluating proposals, in that managerial judgement has more value before an important strategic decision is made than afterwards when strategic risks might not be avoidable. Top management hubris may account for a lack of open dialogue in cases **III** and **V**, making the SID process riskier than it need be.

Again Case **I** stands out in that informal and highly political processes appeared to be important in gaining consensus, although the managers rarely encountered temporary alliances. The socio-political process was described by the interviewee in Case **I**:

> "Because we want the project approval process to go on smoothly, we make sure that anybody that may have a contrary view is dealt with before it gets to the final decision making process. Our managers tend to view things independently and if they don't like something then they will say it. Particularly when we are dealing with big financial decisions, then managers are always

> a bit edgy about whether it is the right thing to go ahead with. And we strive to avoid someone questioning some of the bases during the final decision stage. So the solution is to do all the behind the scene works because it is too dangerous not to, and a lot of problems get ironed out behind the scenes. As a result we end up with a far better proposal that looks far more likely to succeed, and go through the entire SID process without a problem."

The consensus seeking process involves wide consultation and a significant amount of interaction behind the scenes by the project champion to gauge and shape the views of other managers, so enhancing/enabling managerial judgement in the decision making process. Managers in cases **II**, **III** and **VI** encountered the formation of temporary alliances to a greater extent than the other organisations, which might be expected more in larger bureaucratic firms, but not necessarily in the technology driven MSE. They also found personal agendas more problematic than managers in the other organisations.

One interviewee in Case **II** (MANAGER 1) emphasised the importance of the views of the leadership team and the Audit Committee in gaining approval for projects. Another interviewee in the same organisation described the consensus seeking process:

> "We do a lot of stakeholder management before we get to present the project proposal. So we might be in talking to our senior managers to extract a view from them whether there is going to be an issue regarding it or whether it is going to a sign on. To ensure easy progression through the company, we get a lot of managers to support the project."(MANAGER 1)

In Case **III** it was noted that dissenters would be isolated, which may explain why the personal agendas were not seen as problematic by three out of four managers. There was a strong sense of top management control coming through the data collected from this organisation. This may mean that some of the managerial judgement exercised through brainstorming and other creative processes was effectively stifled later in the process.

This formality is also evident in Case **IV**, where the SID process is closely controlled by the Corporate Finance function, with three stages of decision making at business unit, investment committee and group board levels. Interviewees made very little comment on consensus seeking other than following set procedures, which allows little scope for managerial judgement. In contrast managers in Case **V** said they used their knowledge and experience a great deal in exercising managerial judgement, often with minimal information about the project. One manager commented:

> "The project is talked about in a very informal way and most of the opinions you put forward are often based on how you visualise the project, how you think it would work out. Again this would draw on your experience and professional background. The opinions would be based on prior similar experiences; and how you deal with people…" (MANAGER H1)

However, as with Case **IV**, managers in Case **V** viewed consensus as a non-issue:

> "Because of the powers of the MD, disagreement is not very evident, because people don't want to be seen as disagreeing with the MD. You don't want to be that guy who is not on the side of the MD." (MANAGER H1)

> "We don't really have a situation where you would discuss issues until you reach a compromise, because of the fact that you have this one individual who is always masterminding the whole project. There is no room for discussions ….there is only room for one thing, support. ….. To me it is just like a typical family business." (MANAGER H2)

A third manager echoed the same sense of top management constraint:

> "You are allowed to say whatever you want to say but whether the reactions of the MD will encourage you to do that in the future, is a different ball game altogether. I would personally say, from my experience, that the reactions and actions of the director do not encourage us. Of course no one is going to stop you from putting across your views, but whether the MD takes it on board or not tells you what to do in future. I would say that the actions and reactions of top management do not encourage meaningful discussions of the investments." (MANAGER H3)

These comments all point to there being no place at all for managerial judgement other than by the MD in the decision making in this organisation, which is in stark contrast to the survey responses to the heuristics and framing questions for this firm, which seemed quite enhancing/enabling.

Whilst Case **VI** shares some similar characteristics in terms of organisational context, it appears to have inherited more of a large firm culture, perhaps due to its history, with the formation of temporary alliances and problems with personal agendas. The reason given by the manager interviewed for not having too much problem with reaching consensus was that open dialogue was encouraged from the start, described as a 'no shocks philosophy'. While part of the process in Case **VI** was similar to the other MSE, there was no impression of the MD or the Chairman stifling the views of other managers as the MD in Case **V** appeared to.

Table 6.5 – Risk and return during SIDs

CASE	*I*	*II*	*III*	*IV*	*V*	*VI*
RISK ASSESSMENT	Comprehensive risk assessment Well documented process with established framework Risk registers maintained				Mixed bag (formal assessment in Case VI, no formal assessment in Case V) No risk registers	
METHOD						
Industry's rule of thumb	■	■	■	■	■	■
Scenario analysis	■	.....	.....	.....	.....	.....
Sensitivity analysis	■	■	■	■	.....	.....
Evaluation of expected outcomes	■	■	■	■	.....	■
Comparison with past projects	■	.....	.....	■	.....	.....
Other	Scrutiny of basic assumptions, Track record of the sponsor, Intuition		Focus groups	Managerial judgement		Intuition
EVALUATION OF EXPECTED RETURN	Expected return or economic value formally and rigorously evaluated Both basic and discounted cash flow techniques employed Managers easily accessed financial projections				Mixed bag (formal evaluation in Case VI, no formal evaluation in Case V) Basic evaluation methods employed Managers easily accessed financial projections	
METHOD						
ROCE	.....	■	■	■	■	■
Payback	.....	■	■	■	■	■
NPV	■	■	.....	.....	.....	.....
IRR	■	■	.....	.....	.....	.....
Other	.....	Economic value added (EVA)	.....	.....	.....	.....

6.5 Risk and Returns

Table 6.5 shows the process of risk assessment and evaluation of return during SIDs. Whilst the methods of risk assessment and evaluation of return varied within and between cases, there was strong evidence for comprehensive risk assessment within established framework in MNCs. There was also strong evidence that all six case organisations evaluated expected return, though the method of evaluation varied.

Although all six case organisations assessed risk associated with the SID, risk assessment in MSEs was diverse with formal assessment in Case **VI** and no formal assessment in Case **V**. In a similar vein, whilst all six case companies evaluated SID expected return, only two of the MNCs used discounted cash flow techniques. Three MNCs and the two MSEs used basic evaluation techniques (ROCE and Payback). There was evidence that the method of evaluation varied not necessarily with size, it appears to vary more with the type of project being proposed, with Case **I** (mergers and acquisitions focus) using mainly IRR. Case **II** was the only case organisation that used Economic Value Added (EVA) to evaluate expected return.

There was evidence that companies are employing other methods to complement conventional risk assessment methods such as industry's rule of thumb, scenario analysis, sensitivity analysis, evaluation of expected outcomes and comparison of risk associated with the SID with risk profile of past projects. Other methods used include scrutiny of basic assumptions, track record of the sponsor, intuition, focus groups and qualitative assessment using managerial judgement.

6.6 Chapter Summary

To sum up, this chapter considered cross-case analysis of the six cases. The analysis followed the analytic framework used for case-by-case analysis in **Chapter 5**. The evidence show interesting findings across the cases on the nature on managerial

involvement in SIDs not previously addressed in previous literature. The evidence agrees with some of the arguments in the literature, extends some of them and adds new insights to the nature of managerial involvement in SIDs. The key findings from the survey (**Chapter 4**) and the case studies (chapters **5** and **6**) are discussed in the next chapter.

The descriptive model (**Figure 5.1**) drawn up from the survey data in **Chapter 4** has been used to analyse these six cases and was helpful in comparing and contrasting the SID processes. The distinction between an enhancing/enabling or an inhibiting process can be made in terms of how much influence managerial judgement has on the decision, though our cases show that few organisations are likely to be totally enhancing/enabling or totally inhibiting. The surprise is that the role of managerial judgement is not as predictable from the size of the organisation as might be expected, though these six cases may not be sufficiently representative to draw a firm conclusion. However, the results do suggest that other aspects such as organisational culture, leadership or management style and use of bespoke decision support systems, are potentially more influential than size. The descriptive model offers sufficient explanation in these cases to conclude that it will be useful in guiding future research on SID making. Managerial judgement appears to be more managed, enhanced/enabled or inhibited in individual companies and offers an intriguing insight to what constitutes an effective SID process.

Chapter Seven

Discussion of Key Findings

Chapter 7
Discussion of Key Findings

General Overview

This chapter discusses the key findings of this study. The findings were presented and analysed in **Chapters 4**, **5** and **6**. The study set out to address specific gaps in the literature regarding the nature of managerial involvement in SIDs using a sequential research approach. The findings have validated and extended Harris' (1999) investment appraisal model; built on the use of intuition, heuristics, framing and group decisions to identify what enhances or inhibits managerial judgement and involvement in SIDs; and addressed the nature of involvement of managers with a management accounting background in SIDs. They also provide a basis for gaining further insights using the theoretical perspectives of organisational structure and strategy theories and psychology concepts of intuition, heuristics and consensus as applied to SIDs. This Chapter compares the key findings of this study with prior literature and builds upon the theoretical perspectives to develop a deeper understanding of the nature of managerial involvement in SIDs.

Existing literature has tended to focus on: investment appraisal techniques; phases of the capital budgeting process in individual organisations; capital rationing by decision makers in decentralized firms; use of post completion audit (PCA) and the impact of environmental factors on PCA; and the failure of economic rationality to explain activities during the capital budgeting process. The key findings of this study on stages of SID across organisations (**Section 7.1**), knowledge adjustment during SID process (**Section 7.2**), managerial judgement (i.e. application of intuition, heuristics, framing and group decisions) during SIDs (**Section 7.3**), socio-political process of achieving consensus (**Section 7.4**), and factors that enhance or inhibit managerial judgement and involvement in SIDs (**Section 7.5**), make a contribution to knowledge as discussed below.

7.1 SID Process

The findings on stages of SIDs across organisations support and extend the stages identified previously. Findings from the survey provide strong support of the stages of SIDs in organisations as documented by Harris (1999). Although there is a slight variation from the cases, the case findings still provide general support. Harris' (1999) model, found that the preliminary stages (early screening) were important in a divisionalised organisation; however, what is novel in the findings of this study is that *implementation* and *post completion review* phases are being emphasised and a new phase, *change management* has emerged. The survey findings show that managers were significantly involved in 10 stages of the SID process. This high level of managers' involvement in all stages of SIDs means that they are more informed about the SID process in their respective companies. Overall, there is support for up to *12 emergent stages* of SID process.

The case findings reveal that in MNCs at least *nine* distinct stages: looking for project opportunities, formulating assumptions (preliminary and detailed), preliminary screening, evaluation (strategic and financial or economic), risk and sensitivity analyses; project paper preparation, approval and authorisation, implementation and testing, and post completion review are common. Other *company specific* stages include: *company investment strategy formulation*; *independent arbiter*; *ascertainment of approval body*; *assignment of roles and responsibilities* and *change management*. What the identification of *company investment strategy formulation* as a distinct stage of the SID process suggests is that, although we would expect strategies to achieve a company's objectives to be developed at every level within a company, this is not the case with investment strategy in all MNCs. The case studies show that in most MNCs, investment strategy for each SID is formulated at the initial stages of the SID process and then used throughout the process.

In contrast to MNCs, only six stages of SIDs are common to MSEs i.e. looking for project opportunities, collecting project data, formulating assumptions (preliminary and detailed), evaluation (strategic and financial or economic) and risk analysis and model building, approval and authorisation, and implementation and testing.

Capital budgeting literature outlines generic stages of investment appraisal without making distinctions between the sizes of organisations. An interesting finding on the stages of SID process in MNCs as opposed to MSEs is that the SID process in MNCs is *complex, comprehensive* and *well documented* with *laid down procedures* and *directives*: it is conducted within *established formal* SID teams. However, the SID process in MSEs is *simple*, often *not documented* and characterised by *informality* and *adhocracy*. One explanation for this variation could be company size and international coverage of operations. MNCs have a complex organisational structure with a number of autonomous or semi-autonomous divisions and responsibility centres. This calls for a reporting hierarchy that is well documented, and the SID process is an established system within such an organisational structure. Another possibility, however, is that MNCs have the resources to maintain such a bureaucratic process, while MSEs have limited resources that are better utilised on other business activities and by *choice* rather than *design* keep the process simple.

7.2 Knowledge Adjustment during the SID Process

The survey and case findings provide evidence that knowledge or information sharing is very important during SID making, and for some types of SID, e.g. mergers and acquisitions, there is extensive consultation of external parties within the supply chain. Contrary to the findings of previous studies that knowledge adjustment follows from post completion audit (Istvan, 1961; Myres *et al*., 1991; Pierce & Tsay, 1992), the case findings indicate that in most companies knowledge adjustment is continuous throughout the SID process. In MNCs *managerial knowledge adjustment* is achieved through continuous *feedback loops* to the stages of the SID process. Interestingly in one MSE the SID process could be described as circular with *knowledge* obtained at one stage of the process fed forward to the next stage and backward to relevant preceding stage or stages. This MSE had one key shareholder and a number of minority shareholders who were not blood-related to the major shareholder.

However, there is variation of managerial knowledge adjustment, represented by feedback loops in the stages of the SID process, from company to company in MSEs. For example, while in the MSE mentioned in the preceding paragraph, knowledge adjustment was pronounced (probably because the SID type, AMT, has a bearing on knowledge adjustment); in another MSE there was no evidence of knowledge adjustment. The individual managers kept the knowledge learned from previous projects to themselves and may or may not (depending on whether they become involved in the next SID or not) bring this knowledge to bear on the next SID. The managers in this MSE did not have the opportunity to review the SID and refer it back to a preceding phase for adjustment. One explanation for this might be the different type of *ownership* (family ownership) of the company, which leads to different *management styles* of top management.

A distinction can be made in PCA regarding the use of data provided by such audit to educate project champions (Istvan, 1961) in that knowledge adjustment during the SID process is continuous. Through a series of feed-forward and feedback loops between stages of the SID process, managerial knowledge adjustment is effected in the case companies. One explanation for this might be that the strategic nature of such investments, conducted in an increasingly uncertain environment, means that environmental uncertainty moderates learning (Chenhall & Morris, 1991).

7.3 Managerial Judgement during SID Making

Both the survey and case findings provide evidence of psychological impacts on SID (a behavioural phenomenon). The findings strongly support the theories that *managers' strategic cognition* and key psychological concepts are relevant to SID making (Simon, 1957, 1976; Staw, 1976, 1981; Schwenk, 1988; Kahneman & Tversky, 1982). The findings show that when identifying strategic risk, managers qualitatively assessed risk based on managerial judgement. *Knowledge of strategy formulation* in the manager's organisation has emerged as an important factor influencing managerial involvement in SIDs. The case findings indicate that this factor is important both in MNCs and MSEs.

A distinction can be made in managerial judgement regarding consultation of external parties within the supply chain during the SID process. For example in Case III managers organised customer focus groups to discuss potential risks associated with projects. Managers seek *guidance* from external sources (*professional consultants* and *external managers*) before making their *own managerial judgement* on the projects. However, the use of consultants or externals largely varied across companies. One explanation for the variation might be the *type of SID* under consideration, e.g. mergers and acquisitions have technical aspects that require professional interpretation from experts as well as getting providers of funds involved from an early phase. Another explanation might be the *type of industry* in which the company operates, e.g. where the industry is such that a company's survival depends on keeping *formulae*, *processes* and *techniques* the company has developed confidential (as was with Case IV), external consultations were *rare*. Another plausible explanation is that companies who consult externally cannot source the skills necessary to interpret those aspects of the project internally. Yet another related possible explanation is that the company's top management use externals as an independent check on the decision made by internal managers. A further probable explanation could be the cost of external consultations *vis-a-vis* the potential benefits of consultation. A company may compare the potential costs of *failure* or '*getting it wrong*' with the cost of external consultation, and only consult externally if the cost of failure outweighs the cost of consultation; moreover, other companies might put a *cap* on the cost that can be incurred on external consultations. The extent of the level of external consultations is varied, with consultations more frequent in MNCs than in MSEs. Overall, various professional consultants and external managers with various perspectives and expertise are consulted.

The findings provide evidence that intuition guided by prior learning is employed in exercising managerial judgement. This supports the observation that most experienced professionals use intuition in exercising judgement (Regel, 2003; Rowan, 1986). However, a distinction can be made in that the use of intuition during SID making is more pronounced in MSEs. One explanation for this might be an organisational structure that allows more freedom to individual managers to use their managerial judgement. The findings reveal that the use of intuition is determined by organisational context and corporate culture.

7.4 Socio-political Process of Achieving Consensus

The case findings reveal that consensus during SIDs is achieved by reaching agreement, constrained agreement and decree in various organisations. In some organisations firm culture or company philosophy influenced achievement of consensus. For example, in Case **VI** a 'no shocks' philosophy encouraged open dialogue and reaching of agreement during the SID process. In Case **III** a 'singular focus, huge team work' which highlights the importance of group identity (Dawes *et al.*, 1988; Bower, 1986; Hickson et al., 1986; Lumijärvi, 1991; Mintzberg et al., 1976), was applied but constrained agreement.

The findings identify managers who are socially compatible, with similar experience, with very different skills, who speak their minds forthrightly, who respect superiors' views and trained in negotiating skills as factors that are important in gaining consensus. However, the importance of these factors is diverse. One explanation of this variation might be the type of SID under consideration; for example for mergers and acquisitions managers who are socially compatible and managers who respect superiors' views are not important to the SID.

The findings lend support to the argument in organisational behaviour literature that politics play a big role in organisational decision making (Pettigrew, 1973; Bower, 1986; Hickson *et al.*, 1986; Mukherjee & Henderson, 1987; Butler *et al.*, 1991; Cyert & March, 1992; Butler *et al.*, 1993; Northcott, 1998; Bazerman, 2006). The findings identify political power and coalition process (Narayanan & Fahey, 1982) occurs during SIDs in the form of temporary alliances formed specifically for the SID. However, the formation of temporary alliances is not consistent among companies; for example, in Cases **I** and **V** temporary alliances rarely occurred, while in Case **IV** it never occurred. One explanation for this variation might be the *management styles* of top management, which either encouraged or discouraged formation of sub-groups. Another, explanation might be the view on politics held by individual managers. Yet another explanation for the variation might be company corporate philosophy, which encourages managers to be open with one another and have team ownership of SID projects. The findings lend support to the recent observation by

Buchanan (2008) that the role that organisational politics play in change is contentious (with the majority of managers he investigated viewing organisational politics as unethical), though use of political tactics is perceived as widespread. The case findings reveal that managers frequently encountered personal agendas during SIDs, though not all of them find personal agendas problematic.

7.5 Factors that Enable or Inhibit Managerial Judgement and Involvement in SIDs

The case findings provide evidence that corporate context impacts on managerial involvement in SIDs. However, the findings provide strong support that involvement of managers in SIDs in not only contingent upon *corporate context* and *organisational culture*, but also on *managerial experience*, *technical knowledge*, *management style* and *discretion of top managers*. The findings identify that these factors encourage aspects of psychological impact, in the context of industry, that positively enable or negatively inhibit managerial judgement and involvement in SIDs.

The extent to which organisational structure (Burns & Stalker, 1994; Lawrence & Lorsch, 1986; Khandawalla, 1977) impacts on the nature of managerial involvement in the SID process seems diverse for different companies. For example in MNCs, where the SID process is *prescribed* with *guidelines* and *directives*, which managers are required to adhere to and are strictly *enforced*, *managerial involvement* might be inhibited. The bureaucratic (formalised (Frederick,1986)) nature of the SID process, means that MNCs do not recognise that *internal allegiances* and *informal meetings* occur during the SID process, which forces managers to stick to the laid down procedures at the expense of the benefits of *'shadow side dynamics'*. This offers supports that coordination of activities among the different specialisations within the firm can either enhance or inhibit contacts between managers (Miller, 1987). The findings provide further evidence that the bureaucratic SID process in MNCs means that *middle managers'* involvement in *review* and *evaluation* of the company's strategic goals is subdued, with important bearing on the whole SID process. The organisational structure of MNCs also restricts involvement of other *stakeholders* of

the company in the SID process and involvement of *senior management* in informal processes during SID making. In contrast, in MSEs, where the SID process is *simple* and *ad hoc* (i.e. less bureaucratic), managerial involvement can also be inhibited. *Top managers'* involvement in almost every stage of the process and discretion mean that *middle managers* are less involved.

The findings also challenge the argument that greater involvement of MAs is desired (Jablonsky *et al*., 1993; Sheridan, 1997; Johnston *et al*., 2002; Pierce & O'Dea, 2003). Both survey and case evidence indicate that managers with a management accounting training are heavily involved in SID making. This means that as MAs move into more strategic management roles they become more involved in SIDs

Factors that enable or inhibit managerial judgement and involvement in SIDs had not been reported in previous studies and the case findings provide interesting evidence on enablers and inhibitors of managerial judgement and involvement. The case findings indicate that some types of heuristics or reference points, and company requirements for presentation of SID information and reaching agreements enable managerial judgement, drawing on intuition and business knowledge; while others inhibit managerial judgement by imposing prescribed format for SID information. The findings strongly support prior psychology studies, which concluded that cognitive heuristics and biases influence strategic decision making (Schwenk, 1988, 1984; Slovic *et al.*, 1977; Tversky & Kahneman, 1974; Gilovich, Griffin & Kahneman, 2002). However, a distinction can be made in that the findings indicate that irrespective of formality of the decision making process, most companies use brainstorming (intuition), comparison with past projects (anchoring and adjustment) and a range of other reference point, which enables managerial judgement. The case findings provide evidence that considerable use of brainstorming enhances judgement in SIDs, while lack of use this type of heuristic could inhibit judgement. The case findings also identify that intuition guided by gut feel enables managerial judgement.

The findings also provide support to the psychological postulation that heuristics that decision makers employ are based on their personal knowledge and experience (Tversky &

Kahneman, 1974), using them as reference point to anchor their decisions. Availability of information on similar past projects enhances managerial judgement by providing reference points that managers required. A distinction can be made regarding anchoring and adjustment in that knowledge or experience of other managers and informal discussions are also used by managers as reference points and they greatly enhance managerial judgement. In a similar vein, knowledge of industry or competition, inner workings of the company and strategy formulation; and managerial, professional and technical experience, all emerged as very important factors that enable managerial judgement. The findings also support the argument that the effectiveness of anchoring and adjustment varies significantly between different decision making situations (Epley & Gilovich, 2002). For example, in Case **VI**, novelty of the projects meant that such a heuristic could not be used. A plausible explanation for this is that AMT projects are innovative and novel and do not relate to past projects. A further distinction can be made regarding heuristics in that new influences on managerial judgement, independence of managers and cynicism, emerged. The findings provide evidence that independence of managers and cynicism enable managerial judgement.

The findings identify that members of a SID group sometimes adopt the risk preference of an influential and charismatic leader, allowing the leader's views to dominate the discussion and influence the outcome of the SID i.e. Moses factor (Hillson & Murray-Webster, 2005). For example in Case **III**, managers' judgement was heavily influenced by views of top management, which inhibits more widespread managerial judgement during SID making. In MSEs, because *dissenting opinions* may not be considered by top management, managers' *proactive* involvement in the SID process is somewhat stifled. However, top management control and managers who participate in SIDs are not hierarchically far apart in MSEs.

The extent to which company requirements for presentation (framing) of SID information influence managerial judgement is diverse. In companies where presentation of real-time information was emphasised (Tversky & Kahneman, 1986), presentation of data to show strategic fit was required, variety of acceptability indicators was required, and there were

off-the-cuff presentation of information, managerial judgement was enhanced. For example on Case **V** where SID information was presented in an off-the-cuff manner, managers were forced to use more cognitive heuristics or mental pictures. Decision makers are influenced by information available as well as how the information is presented (Trabasso & Bartolone, 2003; Mulligan & Hastie, 2005). Company requirements for framing of SID information reveal factors that inhibit managerial judgement. For example, although formal presentation of detailed and comprehensive evaluations quickened the SID process, it tended to inhibit managerial judgement. In a similar vein, where the company provides a standard template that managers are required to use, managerial judgement is stifled.

The aspects of factors important in gaining consensus that enable managerial judgement are managers with different experience, who speak their minds forthrightly, and trained in negotiating skills. In contrast, managers who are socially compatible, with similar experience and who respect superiors' views inhibit managerial judgement. Each factor alters managers' initial opinion of the SID. The findings show that pursuance of personal agendas may prove problematic and together with formation of temporary alliances enhance managerial judgement, and this lends support to Yang's (2003) observation that coalition of individuals pursuing their own self-interests impacts on decision making.

7.6 Chapter Summary

In summary, the findings contribute to a more comprehensive picture of the nature of managerial involvement in SIDs. Organisational context, corporate culture and psychological factors encourage positive aspects of individual and group decisions in the context of industry that are more likely to enable or inhibit managers' participation in SIDs. Case findings provide evidence that managerial judgement is determined by organisational context and corporate culture, and diverse aspects of *managerial judgement* have significant influences on the nature of managerial involvement. These findings have important contributions to theory in Accounting and Finance and practice, which are outlined in **Chapter 8**. The chapter also discusses limitations of the study, and new areas of insights worth following up.

Chapter Eight

Conclusions

Chapter 8

Conclusions

General Overview

This study aimed to investigate three strands of SID making viz.:

1. extend Harris' (1999) investment appraisal model,
2. build on psychology concepts to identify factors that enhance/enable or inhibit managerial judgement and involvement in SIDs and
3. the nature of involvement of managers with a management accounting training in SIDs.

The factor analysis of survey data led to identification of themes of SIDs that formed a basis of a template used for case analysis. Findings of the survey identify five themes in the template and the key findings (**Chapter 7**) were discussed under these.

The review of literature relevant to SID making (**Chapter 2**) and the key findings of this study show how it varies significantly from previous studies. It tackles an area of capital budgeting that has seen limited research and uses a sequential approach. The changed focus has led to a number of intriguing results, with novel contributions to knowledge of SID making.

This chapter, drawing on the previous seven chapters, presents the conclusions and contribution of the study based on the key findings in **Section 8.1**. Then it discusses the implications and limitations of the study in **Section 8.2** and **Section 8.3** respectively. Finally, **Section 8.4** concludes the chapter and suggests areas for future research.

8.1 Conclusions from the Key Findings

A number of conclusions may be drawn from the key findings of this study. The key findings are on five aspects of SID making, and the study makes contribution to knowledge of SIDs regarding those aspects. **Table 8.1** summarises the conclusions from the key findings.

Table 8.1 Summary of Conclusions from Key Findings

Aspect	*Key Findings*
SID process	• There is support for six to 10 stage model of SIDs. • Implementation and post completion review stages are being emphasised by organisations. A new stage change management has emerged. • SID process in MNCs is complex, comprehensive and well documented, whilst SID process in MSEs is informal, ad hoc and not documented.
Knowledge adjustment	• Managerial knowledge adjustment in MNCs and some MSEs is continuous during the SID process with feedback and feed-forward loops. • A circular feedback and feed-forward method of knowledge adjustment has emerged.
Managerial Judgement	• Managers employ strategic cognition and different types of heuristics when exercising judgement during SID making. • Widespread consultation of external parties occurs during SID making, which impacts on managerial judgement. • Intuition guided by prior learning is often employed by managers in exercising managerial judgement.
Socio-political processes of achieving consensus	• Consensus during SID making is achieved in three ways: reaching agreement, constrained agreement and decree. • Company philosophy influences achievement of consensus. • Managers' attributes of sociality, similar experience, forthright speaking of mind, respect of superiors' views and negotiating skills are important in gaining consensus. • Political power and coalition process, in the form of temporary alliances and personal agendas, frequently occur during SID making.
Factors that enable or inhibit managerial judgement and involvement in SIDs	• Managerial involvement is contingent upon corporate context, organisational culture, managerial experience, technical knowledge, management style and discretion of top managers. • Prescribed SID process such as in MNCs might inhibit managerial judgement and involvement in SIDs. • Top managers' heavy involvement and discretion in simple and ad hoc SID processes can also inhibit managerial involvement. • Heuristics that impose prescribed format for SID information and reaching agreements might inhibit managerial judgment and involvement, whilst those allowing free format for presentation and reaching agreements drawing on intuition and business knowledge enhance/enable managerial judgement and involvement. • Use of brainstorming, comparison with past projects and a range of other reference points enable managerial judgement. • Where SID group adopt a risk preference of an influential and charismatic leader i.e. the 'Moses factor', managerial involvement can be inhibited. • Inclusion of managers with different experience, who speak their minds and trained in negotiating skills in an SID group, can to enhance managerial judgement. However, inclusion of managers who are socially compatible, with similar experience and who respect superiors in an SID group, might inhibit managerial judgement

8.1.1 The SID Process

The SID process goes through distinct identifiable stages. This study provides evidence that multiple managers are significantly involved in 10 stages, with up to 12 emergent stages. It also provides evidence that the process is more bureaucratic and complex in MNCs but simple and ad hoc in MSEs.

It further contributes to knowledge on SID process in that it identifies that the *implementation* and *post completion review* stages of the process are being emphasised. It interestingly identifies a new stage of the process, *change management*.

8.1.2 Knowledge Adjustment during the SID Process

Managerial knowledge adjustment during SIDs is a continuous process. The study gives evidence that managerial knowledge adjustment is achieved through feedback and feed forward loops linking the stages of the SID process. In some companies, the process of knowledge adjustment can be described as *circular*.

It distinctly shows that knowledge adjustment does not follow PCA; it is continuous throughout the SID process. It also indentifies that knowledge adjustment is used to provide feedback to educate all managers involved in the SID process, not just project champions.

8.1.3 Managerial Judgement during the SID Process

The study shows that in exercising managerial judgement during SID making, managers employs strategic cognition and different types of heuristic (e.g. industry rule-of-thumb, comparison with past projects, etc). Intuition guided by prior learning is employed by managers exercising judgement during SID making.

The study provides evidence of widespread consultation of external parties during the SID process, which impacts on managerial judgement. It also recognises that intuition guided by prior learning and availability of information that managers can use as anchors during SID making impact on their judgement during SIDs.

8.1.4 Socio-political process of Achieving Consensus

The study identifies that there are three ways consensus is achieved during the SID process: *reaching agreement*, *constrained agreement* and *decree*. The study offers evidence that corporate culture that encourages company philosophy positively influences achievement of consensus. It also provides evidence that attributes of managers such sociality, experience, skills, manner of speech, and respect for superiors are important in achieving consensus during the SID process. The study shows that political power and coalition occur during SID making and that the extent to which these political factors are considered problematic by managers varies.

The study indicates that political power and coalition process manifest themselves during SIDs in the form of temporary alliances, formed specifically for the purpose of the SID, and personal agendas. It is interesting to note that the formation of temporary alliances during SID varies across organizations depending on corporate context and organisational culture, which encourage or discourage certain corporate philosophy or management styles.

8.1.5 Factors that Enhance/Enable or Inhibits Managerial Judgement and Involvement in SIDs

This study has been able to shed light on factors that enhance and inhibit managerial judgement and involvement in SIDs. It shows that involvement of managers in SIDs is contingent upon *corporate context*, *organizational culture*, *managerial experience and technical knowledge*, and *management style and discretion of top managers*. These factors

encourage individual and group psychological aspects that either positively **enhance/enable** or negatively **inhibit** managerial judgement and involvement in SIDs.

The study indicates that managers with a management accounting training are heavily involved in SIDs. Thus there is a clear indication that as management accountants move into more strategic management roles, they are more involved in SIDs. The study also identifies that formation of temporary alliances specifically for the purpose of a SID enhances managerial involvement in SIDs.

The study shows that the use intuition (brainstorming), anchoring and adjustment (e.g. comparison of the SID with similar past projects), and other heuristics (various other reference points) by managers in most companies enhance managerial judgement. It indicates that the type of heuristic that managers use during SIDs is based on their personal knowledge and experience. It is interesting to note that it is not only the knowledge and experience of the manager that is used as reference points, but also those of other managers and informal discussions. The study therefore shows that knowledge and experience of other managers involved in the SID process and informal discussions greatly enhance managerial judgement. The study also identifies that use of real-time information; data that shows strategic fit, variety of acceptability indicators and off-the-cuff presentation of SID information greatly enhance managerial judgement.

Furthermore, the study indicates that the use of knowledge of industry or competition; inner workings of the company and strategy formulation enhance managerial judgement during SIDs. The key findings also identify independence of managers and cynicism as further factors that enhance managerial judgement. There is also indication that the effectiveness of anchoring and adjustment in enhancing managerial judgement varies with the SID type. In addition, the study indicates that SID groups comprising managers with different experience, who speak their minds and trained negotiating skills, enhance managerial judgement. The study shows that pursuance of personal agendas by managers inhibit their managerial judgement.

The study identifies that bureaucratic SID processes with prescribed and strictly enforced guidelines and directives (as found in MNCs) might inhibit managerial involvement in SIDs. However, it is interesting to note that the study indicates that simple and ad hoc SID processes (as found in MSEs) can equally inhibit managerial involvement. This might be as a result of top managers' discretion and heavy involvement in the process.

In addition, the study's key findings show that in organisations where Moses factor occurs, it inhibits managerial judgement. Also the study shows that presentation of SID information in a prescribed format that includes detailed and comprehensive evaluations can inhibit managerial judgement. The key findings also indicate that sociality of managers; similar experience and respect for superiors' views can inhibit managerial judgement.

8.2 Possible Implications of the study

The conclusions of the study in the preceding section are expected to be of value to SID theory and practice in the following ways:

i. There is support for six to 10 stage model of SIDs across organisations. This has significant implications for new or developing organisations in that there is a common approach to SIDs across organisations, which can provide a structure for new or developing organisations. It validates Harris (1999) seven-stage investment appraisal model and extends it to a ten-stage model.

ii. However, there is variation in SID practice dependent upon organisational contexts and corporate culture (characterised by size, i.e. MNCs and MSEs and SID types), and between organisations (characterised by industry types). This has implications for understanding and improving SID making. The SID process is not monolithic; though it is often discussed and acted upon as if it were. If those seeking to expand managerial participation in SID making are to succeed, they need to clearly define

and understand the practice in which they would like to increase participation and target their strategies accordingly.

iii. Personal characteristics of managers involved in SIDs impact on managerial judgement and involvement in SID making. This has implications for the SID process, particularly, development of managers, senior manager – junior manager relationships, management styles, SID team management, motivation of managers on the SID team, and selection of SID teams. A significant impact is on selection of an effective SID team. By establishing and organising SID teams according to unique personal attributes, organisations can attain optimal group decision during an SID.

iv. This study shows that managerial knowledge and experience impact on managers' involvement in the SID process and judgement. The findings on managerial knowledge adjustment shows that experience attained through such knowledge adjustment provide managers with a frame of reference for future SIDs. It is suggested that training of junior managers should involve techniques of knowledge management. In addition senior managers could be encouraged to present lessons learnt between projects and share best practice with their junior counterparts.

v. The nature of managerial involvement is more complex than frequently envisaged. The key findings of this study provide an outline of the nature of managerial involvement in SIDs which can be expanded upon.

vi. This study also signifies a very important aspect in management where organisational context and culture encourage or discourage individual, group and socio-political processes that might enhance or inhibit managerial judgement and involvement in SIDs. The findings on enablers and inhibitors of SID have implications for improving the SID process. If managers are to improve the SID process, they can focus their strategies on justifying the inhibitors, e.g. procedures

manual, while seeking to harness the enhancers, e.g. knowledge sharing. An optimal balance of structured and intuitive processes that build on the strength of enabling framework and minimises the negative impact of structure can thus be achieved.

vii. The findings of this study in comparison with the observation by Byrne and Pierce (2007) indicate that there is a steady upward trend in the involvement of MAs in SIDs. This upward trend is dictated by increasing number of MAs assuming more senior managerial roles. The increasing trend in MAs assuming more senior managerial roles has been recently confirmed by Cooper & Dart (2009).

8.3 Limitations of the study

The nature of MPhil research meant that the scope of the study was limited in terms of coverage as discussed in **Section 1.3** of **Chapter 1**. The response rate from target managers in the study meant the sample size for the analytical survey was limited, though sufficient. In a similar way access to managers to participate in the study led to a relatively small number of interviews for the cases studies. The reliability of the findings of the study that may be contingent on the number of participants could have been enhanced further by a larger sample and number of interviews conducted. A larger sample size for the analytical survey and higher number of interviews for the case studies would have augmented the validity and generalisability of the findings.

The companies that participated in the study were selected on the basis of matching FT companies to the CIMA database to identify members in senior enough positions to be involved in SIDs and willingness to participate in the study. Purposive rather than random sampling was therefore used to select the sample for the survey. The use of purposive and convenient sampling (for the case studies) might have some unintended impact on the findings. Consequently, any generalisations of the findings to a wider population of organisations and managers need to be made with care.

Any study relying on managers to volunteer to participate in interviews risks selecting participants with a high level of interest in or commitment to the area under investigation. However, the case studies did not seek statistical representativeness, but gathered a diversity of perceptions and experiences from managers across various industries and functions (see **Section 3.2.2**). The researcher was reassured by the variety in terms of functional positions, experience and industry sectors in the sample, and by the evident informed views of participants regarding SID making.

In addition, Slovic *et al.* (2007) and Finucane *et al.* (2000), have identified the affect heuristic, which they advocate should replace anchoring in the judgement of risks and benefits during decision making. Slovic *et al.* (*ibid.*:1333) define the affect heuristic as reliance on the feelings associated with "the specific quality of "goodness" or "badness" experienced as a feeling state (with or without consciousness) and demarcating a positive or negative quality of a stimulus". They argue that people use the affect heuristic to make judgements or decisions because the "representations of objects and events in peoples mind are tagged to varying degrees with affect". Managers would draw from the pool of affect (positive or negative labels that are consciously or unconsciously connected to representation of project information) during decision making or when exercising judgement. Although, Slovic *et al*. (*ibid.*) refer to the concept as a heuristic, it is more to do with representations and could fit better under framing. The affect heuristic is difficult to identify separately from other heuristics or framing, so was not distinguished in this study.

8.4 Suggestions for Future Research

This study looked at the nature of managerial judgement in SIDs. There are still a number of questions not addressed by the study and room for further work in this area. Managers who were surveyed and interviewed were mainly those with a management accounting training. The study might be replicated for managers without any accounting training to establish if the findings apply to managers with any professional background. The research

might also be replicated using alternative research methods, e.g. Bower (1986) type case studies, observing and tracking real SIDs as they occur.

Secondly, future research might seek to explain how enabling framework of intuitive processes and inhibiting structure that have been identified in this study impact on decision performance of organisations. Further research will need to explore whether and how organisations can justify inhibiting structure and harness intuitive processes. Future research should seek to explain decision performance for different mix of structured and intuitive processes.

Thirdly, further research might be conducted to investigate the application of the affect heuristic during SID making: though this would be most likely to be investigated through an experimental study, not by real time case studies. The research on affect heuristic may also help provide further insights into the problem of escalating commitment that some scholars have focused on.

However, the most critical aim for future research should be to get beyond the analytic techniques of investment appraisal that have dominated investment decision research. Thirty-four years ago (King, 1975) denounced the 'misplaced emphasis' of capital budgeting theory. It is time future research sought to balance the emphasis by focusing on human involvement and behavioural aspects of strategic investment decision.

8.5 Chapter Summary

This study developed and integrated themes from behavioural sciences to provide new insights of strategic investment decisions for management accounting. It extends Harris (1999) investment appraisal model and supports a six to 10 stage model of SIDs across organisations. This common approach to SIDs provides a structure for new and developing companies. The study also identifies that SID practice is not monolithic. It varies across

organisations with significant implications for those seeking to understand and improve SID making.

The study also builds on psychology concepts and reveals that managers within formal SID process enriched objective practices with subjective insights. It identifies that personal characteristics of managers, e.g. sociality, knowledge, experience and other skills, impact on managerial judgement and involvement in SIDs. The researcher suggests that organisations should harness unique personal attributes when developing managers and constituting SID teams.

In addition the study distinguishes between enabling framework of intuitive processes and inhibiting impact of structure. It recognizes that awareness of enhancers of SID making overcome the problem of information asymmetry. The researcher suggests that organisations should justify structured processes and harness intuitive processes to attain an optimal balance for improved SIDs.

The study developed a descriptive model drawn up from the survey data and used it to analyse the cases. This model is helpful in comparing and contrasting the SID processes. The distinction between an enabling or an inhibiting process can be made in terms of how much influence managerial judgement has on the decision, though our cases show that few organisations are likely to be totally enabling or totally inhibiting.

The study recognises that there is a steady upward trend in the involvement of MAs in SIDs. It reveals that for managers, the level of managerial involvement in SIDs is high across all sectors, though it is more idiosyncratic in MSEs. This highlights the insufficiency of the objective processes of SID making, which needs to be augmented by managerial judgement, exercised individually and collectively. This study extends the extant scope of our understanding of SID making, beyond the dominant 'technical' emphasis on the application of discounted cash flow techniques for the purpose of SIDs.

References

References

Abele, S., Bless, H. & Enhrhart K-M. (2004). "Social information processing in strategic decision-making: why timing matters." *Organizational Behavior and Human Decision Processes*, **93**(1), 28–51.

Adler, P.S. & Borys, B. (1996). "Two types of bureaucracy; enabling and coercive." *Administrative Science Quarterly*, **41**(1), 61–89.

Ahrens, T. & Chapman, C. (2004). "Accounting for flexibility and efficiency: a field study of management control systems in a restaurant chain." *Contemporary Accounting Research*, **21**(2), 271–301.

Ahrens, T. (1997). "Talking accounting: an ethnography of management knowledge in British and German brewers". *Accounting, Organisation & Society*, **22**(7), 617–637.

Ahrens, T. (2008). "Overcoming the subjective-objective divide in interpretive management accounting research." *Accounting, Organisation & Society*, **33**(1/2), 292–297.

Ahrens, T. & Chapman, C. S. (2006). "Doing qualitative field research in management accounting: positioning data to contribute to theory." *Accounting, Organisation & Society*, **31**(8), 819–841.

Ahrens, T. & Chapman, C. S. (2000). "Occupational identity of management accountants in Britain and Germany." *The European Accounting Review*, **9**(4), 477–498.

Alexis, M. & Wilson, C. Z. (1967). *Organizational Decision Making*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Alicke, M. D., Klotz, M. L., Breitenbecher, D. L. & Yurak, T. J. (1995). "Personal contact, individuation, and better-than-average effect." *Journal of Personality and Social Psychology*, **68**(1), 804–825.

Allison, G. T. (1971). *Essence of Decision: Explaining the Cuban Missile Crisis*. Boston: Little Brown.

Allison, G. T. (1969). "Conceptual models and the Cuban missile crisis." *The American Political Science Review*, **63**(3), 689–718.

Antle, R., Bogetoft, P. & Stark, A. (2001). "Information systems, incentives, and the timing of investments." *Journal of Accounting & Public Policy*, **20**(4/5), 267–294.

Antle, R. & Eppen, G. (1985). "Capital rationing and organizational slack in capital budgeting." *Management Science*, **31**(2), 163–174.

Antle, R. & Fellingham, J. C. (1990). "Resource rationing and organizational slack in a two-period model." *Journal of Accounting Research*, **28**(1), 1–24.

Aragon-Sanchez, A. & Sanchez-Marin, G. (2005). "Strategic orientation, management characteristics, and performance: A study of Spanish SMEs." *Journal of Small Business Management*, **43**(3), 287–309.

Arya, A., Fellingham, J. C., Glover, J. & Sivaramakrishnan, K. (2000). "Capital budgeting, the hold-up problem, and information system design." *Management Science*, **46**(2), 205–216.

Arya, A., Fellingham, J. C. & Young, R. (1993). "The effects of risk aversion on production decisions in decentralized organizations." *Management Science*, **39**(7), 794–805.

Arya, A. & Glover, J. (2001). "Option value to waiting created by a control problem." *Journal of Accounting Research*, **39**(3), 405–415.

Baan, R. (2005). "The need for further consolidation within the global steel market." *Mittal*. Stahlmarkt, **2005, 1 – 2 March.**

Bacharach, S. B. & Lawler, E. J. (1981). *Power and Politics in Organizations: The Social Psychology of Conflict, Coalitions, and Bargaining*. San Francisco, CA: Jossey-Bass.

Baiman, S. & Rajan, M. (1995). "Centralization, delegation and shared responsibility in the assignment of capital investment decision rights." *Journal of Accounting Research*, **33**(Sup.), 135–164.

Baldenius, T. (2003). "Delegated investment decisions and private benefits of control." *The Accounting Review*, **78**(4), 909–930.

Barnes, J. (1984). "Cognitive biases and their impact on strategic planning." *Strategic Management Journal*, **5**(2), 129–138.

Bass, B. M. (1983). *Organisational Decision Making*. Homewood, Illinois 60430: Richard D. Irwin Inc.

Bass, B. M. & Ryterband, E. C. (1979). *Organisational Psychology*, (2nd Ed.). London: Allyn and Bacon, Inc.

Bazerman, M. H. (2006). *Judgment in Managerial Decision Making*, (6th Ed.). John Wiley: New York.

Becker, S., Ronen, J. & Sorter, G. (1974). "Opportunity costs – an experimental approach." *Journal of Accounting Research*, **12**(2), 317–329.

Bierman, H. Jr. & Smidt, S. (1988). *The Capital Budgeting Decision: Economic Analysis of Investment Projects*, (7th Ed.). London: Collier Macmillan Publishers.

Bierman, H. Jr. and S. Smidt, S. (1993). *The Capital Budgeting Decision: Economic Analysis of Investment Projects*, (8th Ed.). Upper Saddle River, New Jersey: Prentice-Hall.

Boland, R. J. (1993). "Accounting and the interpretive act." *Accounting, Organisation & Society*, **18**(2/3), 125–146.

Bosma, H., Marmot, M. G., Hemingway, H., Nicholson, A. C., Brunner, E., & Stansfield, S. A. (1997). "Low job control and risk of coronary heart disease in Whitehall II (prospective cohort) study." *British Medical Journal*, **314**(7080), 558–565.

Bower, J. L. (1986). *Managing the Resource Allocation Process*. Boston, Mass: Harvard Business School Press.

Brenner, M. (1985). "Intensive interviewing", in Brenner M., Brown, J. & Canter, D. (Eds.). *The Research Interview: Uses and Approaches*. London: Academic Press.

Brenner M., Brown, J. & Canter, D. (Eds.). (1985). *The Research Interview: Uses and Approaches*. London: Academic Press.

Buchanan, D. A. (2008). "You stab my back, I'll stab yours: management experience and perceptions of organization political behaviour." *British Journal of management*, **19**(1), 49–64.

Buckley, J. W., Buckley, M. H. & Chiang, H. (1976). *Research Methodology & Business Decisions*. National Association of Accountants.

Bullock, A. & Trombley, S. (Eds.). (1999). *The New Fontana Dictionary of Modern Thought*. London: Harper Collins Publishers.

Burke, L. A. & Miller, M. K. (1999). "Taking the mystery out of intuitive decision making." *Academy of Management Executive*, **13**(4), 91–99.

Burke, L. & Walker, J. (2003). *Management Accounting – Decision Making*. London: Oxford: Elsevier.

Burns, T. (1961). "Micropolitics: mechanisms of institutional change." *Administrative Science Quarterly*, **6**(3), 257–281.

Burns, J. & Baldvinsdottir, G. (2005). "An institutional perspective of accountants' new roles – the interplay of contradictions and praxis". *European Accounting Review*, **14**(4), 725–757.

Burns, J., Ezzamel, M. & Scapens, R. (1999). Management accounting change in the UK." *Management Accounting (UK)*, **77**(3), 28–30.

Burns, T. & Stalker, G. M. (1994). *The Management of Innovation*. Oxford: Oxford University Press.

Burns, J. & Yazdifar, H. (2001). "Tricks or treats". *Financial Management*, **March**, 33–35.

Butler, R., Davies, L., Pike, R. & Sharp, J. (1991). "Strategic investment decision making: complexities, politics and processes." *Journal of Management Studies*, **28**(4), 395–415.

Butler, R., Davies, L., Pike, R. & Sharp, J. (1993). *Strategic Investment Decision Making: Theory Practice and Process*. London: Routledge.

Byrne, S. & Pierce, B. (2007). "Towards a more comprehensive understanding of the roles of Management Accountants." *European Accounting Review*, **16**(3), 469–498.

Caglio, A. (2003). "Enterprise resource planning systems and accountants: towards hybridization?" *European Accounting Review*, **12**(1), 123–153.

Calhoon, R. P. (1969). "Niccolo Machiavelli and the 20th century administrator." *Academy of Management Journal*, **12**(2), 205–212.

Camerer, C. & Lovallo, D. (1999). "Overconfidence and excess entry: an experimental approach." *American Economic Review*, **89**(1), 306–318.

Cameron, K. & Quinn, R. (2006). *Diagnosing and changing organizational culture: Based on the competing values framework* (Revised Edition). San Francisco: Jossey-Bass.

Carr, C. & Tomkins, C. (1996). "Strategic investment decisions: the importance of SCM. A comparative analysis of 51 case studies in U.K., U.S. and Germen companies." *Management Accounting Research*, **7**(2), 199–217.

Chandler, A. (1962). *Strategy and Structure: Chapters in the History of Industrial Enterprise*. Cambridge, MA: The MIT Press.

Chandler, A. (1977). *The Visible Hand: The Managerial Revolution in American Business*. Cambridge, MA: Belknap Press.

Chang, C. J. & Ho, J. (2004). "Judgement and decision making in project continuation: a study of students as surrogates for experienced managers." *Abacus*, **40**(1), 94–116.

Chanlat, J. F. (1997). "Conflict and politics". In Sorge, A. & Warner, M. (Eds.), *Handbook of Organizational Behaviour*, 472–480. London: International Thomson.

Cheng, M., Schulz, A., Luckett, P. & Booth, P. (2003). "The effects of hurdle rates on the level of escalation of commitment in capital budgeting." *Behavioural Research in Accounting*, **15**(1), 63–85.

Chenhall, R. H. & Langfield-Smith, K. (1998). "Factors influencing the role of Management Accounting in the development of performance measures within organisational change programs". *Management Accounting Research*, **9**(4), 361–386.

Chenhall, R. & Morris, D. (1991). "The effect of cognitive style and sponsorship bias on the treatment of opportunity costs resource allocation decisions." *Accounting, Organisation and Society*, **16**(1), 27–46.

Chow, C., Harrison, J. P., Lindquist, T. & Wu, A. (1997). "Escalating commitment to unprofitable projects: replications and cross-cultural extension." *Management Accounting Research*, **8**(3), 347–361.

Chua, W. F. (1986). "Radical developments in accounting thought." *The Accounting Review*, **LXI**(4), 601–632.

Claxton, G. (1998). "Knowing without knowing why." *The Psychologist*, **11**(5), 217–220.

Coad, A. F. (1999). "Some survey evidence on learning and performance orientations of management accountants." *Management Accounting Research*, **10**(2): 109–135.

Coffey, A. & Atkinson, P. (1996). *Making Sense of Qualitative Data.* Thousand Oaks, CA: Sage.

Collier, P., Berry, A. J. & Burke, G. T. (2007). *Risk and Management Accounting: Best practice guidelines for enterprise-wide internal control procedures*. Oxford: Elsevier.

Companies Act 1985. (c.6). London: HMSO

Conant, J. S., Mokwa, M. P. & Varadarajan, P. R. (1990). "Strategic types, distinctive marketing competencies, and organizational performance: a multiple measures-based study." *Strategic Management Journal*, **11**(5), 365–383.

Conyon, M. J. & Mallin, C. (1997). "Women in the Boardroom: evidence from large UK companies." *Corporate Governance*, **5**(3), 112–117.

Cooke, S. & Slack, N. (1991). *Making Management Decisions*, (2nd Ed.). London: Prentice Hall.

Cooper, D. J. (1975). "Rationality and investment appraisal." *Accounting and Business Research*, **15**(18), 198–202.

Cooper, P. & Dart, E. (2009). *Change in the Management Accountant's Role: Drivers and Diversity*. Conference Paper. Dundee: British Accounting Association Annual Conference.

Covaleski, M. A., Dirsmith, M. W. & Samuel, S. (1996). "Managerial accounting research: the contributions of organizational and sociological theories." *Journal of Management Accounting*, **8**, 1–35.

Christensen, P., Feltham, G. & Wu, M. (2002). "'Cost of capital' in residual income for performance evaluation." *The Accounting Review*, **77**(1), 1–23.

Creswell, J. W. (2002). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*. Upper Saddle River, NJ: Merrill Prentice Hall.

Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, (2nd Ed.). London: Sage.

Cronbach, L. J. (1951). "Coefficient alpha and the internal structure of tests." *Psychometrika*, **16**(3), 297–334.

Cyert, R. M. & March, J. G. (1963). *A Behavioural Theory of the Firm*. Englewood Cliffs, NJ: Prentice-Hall.

Cyert, R. M. & March, J. G. (1992). *A Behavioural Theory of the Firm* (2nd Ed.). Oxford: Blackwell Publishers Ltd.

Data Protection Act 1998. (c. 29). London: HMSO.

Dawes, R. M., Kragt, A. J. C. v. d. & Orbell, J. M. (1988). "Not me or thee but we: the importance of group identity in eliciting cooperation in dilemma situations: experimental manipulations." *Acta Psychologica*, **68**(1/3)**,** 83–97.

Dawson, P. (2003). *Reshaping Change: A Processual Approach*. London: Routledge.

Denzin, N. K. & Lincoln, Y. S. (Eds.). (1994). *Handbook of Qualitative Research*. London: Sage.

Denzin, N. K. & Lincoln, Y. S. (Eds.). (2000). *Handbook of Qualitative Research*, (2nd Ed.). London: Sage.

Department for Business Enterprise & Regulatory Reform. (2007a). *Energy Consumption Tables: Overall Energy Consumption Tables, 1970 to 2006.* [Online] http://www.berr.gov.uk/energy/statistics/publications/ecuk/overall/page17954.html. Accessed on 5 October 2007.

Department for Business Enterprise & Regulatory Reform. (2007b). *Factors Affecting the Change in Energy Consumption, 1970 to 2006.* [Online] http://www.berr.gov.uk/energy/statistics/publications/ecuk/overall/page17954.html. Accessed on 5 October 2007.

Dey. I. (1993). *Qualitative Data Analysis: A User Friendly Guide for Social Scientists*. London: Routledge.

Drory, A. (1993). "Perceived political climate and job attitudes." *Organisational Studies*, **14**(1), 59–71.

Drury, J. C., Braund, S., Osborne, P. & Tayles, M. (1993). *A Survey of Management Accounting Practices in UK Manufacturing Companies*. London: The Association of Chartered Certified Accountants.

Dulman, S. P. (1989). "The development of discounted cash flow techniques in US industry." *Business History Review*, **63**(3), 555–587.

Dutta, S. (2003). "Capital budgeting and managerial compensation: incentive and retention effects." *The Accounting Review*, **78**(1), 71–93.

Dutta, S. & Reichelstein, S. (2002). "Controlling investment decisions: depreciation and capital charges." *Review of Accounting Studies*, **7**(2/3), 253–281.

Dyson, R. G. (1990). *Strategic Planning: Models and Analytical Techniques*. Chichester: John Wiley & Sons.

Easterby-Smith, M., Thorpe, R., & Lowe A. (2002). *Management Research: An Introduction*, (2nd Ed.). London: Sage.

Eden, C. (1992). "Strategy development as a social Process." *Journal of Management Studies*, **29**(6), 799–811.

Egan, G. (1994). *Working the Shadow Side: A Guide to Positive Behind-the-Scenes Management*. San Francisco, CA: Jossey-Bass.

Eisenhardt, K.M. (1989a). "Making fast strategic decisions in high-velocity environments". *Academy of Management Journal*, **32**(3), 543–576.

Eisenhardt, K.M. (1989b). "Building theories from case study research." *Academy of Management Journal*, **32**(3), 543–576.

Emery, M. (2002). *Power Hunch: Living an Intuitive Life*. Hillsboro, Oregon: Beyond Words Publishing.

Epley, N. & Gilovich, T. (2002). "Putting adjustment back in the anchoring and adjustment heuristic." In Gilovich, T., Griffin, D. and Kahneman, D. (Eds.). *Heuristics and Biases*. New York: Cambridge University Press, 139 – 149.

Erlandson, D. A., Harris, E. L., Skipper, B. L. & Allen, S. D. (1993). *Doing Naturalistic Inquiry*. Newbury Park, CA: Sage.

Ezzamel, M., Lilley, S. & Willmott, H. (1997). "Accounting for management and management accounting: reflections on recent changes in the UK". *Journal of Management Studies*, **34**(3), 439–464.

Ferris, G. R., Frink D. D., Galang M. C., Zhou, J., Kacmar, M. K. & Howard, J. L. (1996). "Perceptions of organizational politics: prediction, stress-related implications, and outcomes." *Human Relations*, **49**(2), 233–266.

Ferris, G. R. & Kacmar, K. M. (1992). "Perceptions of organizational politics." *Journal of Management*, **18**(1), 93–116.

Ferris, G. R. & King, T. R. (1991). "Politics in human resources decisions: a walk on the dark side." *Organizational Dynamics*, **20**(2), 59–71.

Financial Times (2007a). "Mining groups encounter tough lessons in geography." *Financial Times Ltd.*, London (UK), **June 4, 2007**, 16.

Financial Times (2007b). "ThyssenKrupp's defences." *Financial Times Ltd.*, London (UK), **March 29, 2007**, 16.

Financial Times (2007c). "Essar takes a gamble on N American steel industry INDUSTRIAL METALS." *Financial Times Ltd.*, London UK, **April 20, 2007**, 38.

Finucane, M. L., Alhakami, A., Slovic, P., & Johnson, S.M. (2000). "The affect heuristic in judgments of risks and benefits." *Journal of Behavioral Decision Making*, **13**(1), 1–17.

Fredrickson, J. (1986). "The strategic decision making process and organizational structure." *Academy of Management Review*, **11**(2), 280–297.

Friedman, A. L. & Lyne, S. R. (1997). "Activity-based techniques and the death of the bean counter." *European Accounting Review*, **6**(1), 19–44.

Freidman, L. A. & Neumann, B. R. (1980). "The effects of opportunity costs on project investment decisions: a replication and extension." *Journal of Accounting Review*, **18**(2), 407–419.

Gandz, J. & Murray, V. V. (1980). "The experience of workplace politics." *Academy of Management Journal*, **23**(2), 237–251.

Ghosh, D. (1997). "De-escalation strategies: some experimental evidence." *Behavioral Research in Accounting*, **9**, 88–112.

Gillham, B. (2000). *Developing a Questionnaire*. London: Continuum.

Gilovich, T., Griffin, D. & Kahneman, D. (Eds.) (2002). *Heuristics and Biases: The Psychology of Intuitive Judgment*. New York: Cambridge University Press.

Glaser, B. & Strauss, A. (1967). *The Discovery of Grounded Theory*. Chicago, IL: Aldine.

Granlund, M. & Lukka, K. (1998). "Towards increasing business orientation: Finnish management accountants in a changing cultural context." *Management Accounting Research*, **9**(2), 185–211.

Granlund, M. & Malmi, T. (2002). "Moderate impact of ERPS on management accounting: a lag or permanent outcome?" *Management Accounting Research*, **13**(3), 299–321.

Granlund, M. & Taipaleenmäki, J. (2005). "Management control and controllership in new economy firms – a life-cycle perspective." *Management Accounting Research*, **16**(1), 21–57.

Greve, H. R. (1998). "Performance, aspirations and risky organizational change." *Administrative Science Quarterly*, **43**(1), 58–86.

Guadagnoli, E. & Velicer, W. F. (1988). "Relation of sample size to the stability of component patterns." *Psychological Bulletin*, **103**(2), 265–275.

Gutek, G. L. (1988). *Philosophical and Ideological Perspectives on Education*. Englewood Cliffs, NJ: Prentice-Hall.

Haka, S. (2007). "A Review of the literature on capital budgeting and investment appraisal: past, present, and future musings." In Chapman, C. S., Hopwood, A. G. & Shields, M. D. (Eds.). *Handbook of Management Accounting Research*, **2**, 697–728. Oxford: Elsevier.

Haleblian, J. J., Kim, J. J. & Rajagopalan, N. (2006). "The influence of acquisition experience and performance on acquisition behavior: Evidence from the U.S. commercial banking industry." *Academy of Management Journal*, **49**(2), 357–370.

Hall, J. (1971). "Decisions, decisions, decisions." *Psychology Today*, **November 1971**: 51–54, 86–88.

Hammond, K. R. (1990). "Intuition and analytical cognition: information models." In *Concise Encyclopedia of Information Processing in Systems & Organizations* (Sage Ed.). Oxford: Pergamon Press, 306–312.

Handy, C. (1995). *Gods of Management: The Changing Work of Organizations*, (4th Ed.). Oxford: Oxford University Press.

Hargreaves-Heap, S. (1989). *Rationality in Economics*. Oxford: Blackwell.

Hargreaves-Heap, S., Hollis, M., Lyons, B., Sugden, R. & Weale, A. (1992). *The Theory of Choice: A Critical Guide*. Oxford: Blackwell.

Harrell, A. & Harrison, P. (1994). "An incentive to shirk privately held information and managers' project evaluation decisions." *Accounting, Organisation and Society*, **19**(7), 569–577.

Harris, E. P. (1999). "Project Risk Assessment: A European Field Study." *British Accounting Review* **31**(3), 347–371.

Harris, E. P. (2000). "Strategic Investment Decision-Making: Managerial Judgement on Project Risk & Return." *Journal of Applied Accounting Research*, **5**(3), 87–110

Harris, E. P. & Emmanuel, C. R. (2000). *Managerial Judgement and Risk Assessment in Strategic Investment Decisions (SIDs)*. Working Paper Series. Glasgow: Department of Accounting and Finance, University of Glasgow.

Harris, M., Kriebel, C. H. & Raviv, A. (1982). "Asymmetric information, incentives and intra-firm resource allocation." *Management Science*, **28**(6), 604–620.

Harrison, P., Chow, C., Wu, A. & Harrell, A. (1999). "A cross-cultural investigation of managers' project evaluation decisions." *Behavioral Research in Accounting*, **11**, 143–159.

Haynes, W. W. & Solomon, M. B. (1962). "A misplaced emphasis in capital budgeting." *Quarterly Review of Economics and Business*. **February**, 39–46.

Helliar, C. V., Lonie, A. A., Power, D. M. & Sinclair, C. D. (2002). "Managerial attitudes to risk: a comparison of Scottish chartered accountants and U.K. managers." *Journal of International Accounting, Auditing & Taxation*, **11**(2), 165–190.

Herbert, W. E. & Wallace, R. S. O. (1996). "A corporate view of research needs in Corporate Finance." *Accounting and Business Research*, **26**(2), 107–124.

Hickson, D. J., Butler, R. J., Cray, D., Mallory, G. R. & Wilson, D. C. (1986). *Top Decisions: Strategic Decision-Making in Organizations*. Oxford: Jossey-Bass.

Hillson, D. & Murray-Webster, R. (2005). *Understanding and Managing Risk Attitude*. Aldershot: Gower.

Ho, S. S. M. & Pike, R. H. (1991). "Risk analysis in capital budgeting contexts: simple or sophisticated?" *Accounting and Business Research*, **21**(83), 227–238.

Ho, S. & Vera-Muñoz, S. (2001). "Opportunism in capital budget recommendations: the effects of past performance and its attributions." *Decision Sciences*, **32**(3), 473 – 497.

Hodgkinson, G. P., Brown N. J., Maule, J. A., Glaister, K. W. & Pearman, A. D. (1999) "Breaking the Frame: An Analysis of Strategic Cognition and Decision Making Under Uncertainty." *Strategic Management Journal* **20**(10), 977 – 985.

Hofer, C. W. & Schendel, D. (1978). *Strategy formulation: analytical concepts*. New York, St. Paul: West Publishing Company.

Holloman, C. R. (1992). "Using both head and heart in managerial decision making." *Industrial Management*, **34**(6), 7–10.

Hopper, T. M. (1980). "Role conflicts of management accountants and their position within organisation structures." *Accounting, Organizations and Society*, **5**(4), 401–411.

Howe, K. R. (1988). "Against the quantitative-qualitative incompatibility thesis and dogmas die hard." *Educational Researcher*, **17**(8), 10–16.

Huczynski, A. A. & Buchanan, D. A. (2001). *Organisational Behaviour: An Introductory Text*, (4th Ed.). London: Financial Times Prentice Hall.

Humphrey, C. (2001). "Paper prophets and the continuing case for thinking differently about accounting research." *British Accounting Review*, **33**(1), 91–103.

Humphrey, C. & Scapens, R. W. (1996). "Theories and case studies of organisational accounting practices: limitation or liberation." *Accounting, Auditing & Accountability Journal*, **9**(4), 86–103.

Hunton, J. E. (2002). "Blending information and communications technology with accounting research." *Accounting Horizons*, **16**(1), 55–67.

International Monetary Fund. (2007). *World Economic Outlook, April 2007: Spillovers & Cycles in the Global Economy.* Washington, D. C.: IMF Multimedia Services Division.

Istvan, D. F. (1961). *Capital expenditure decisions: how they are made in large corporations*. Bloomington, IN: Foundation for Economics and Business Studies.

James, W. (1890). *The Principles of Psychology*, Vol. 1. Henry Holt; reprinted Dover Publications, 1950.

Janis, I. L. (1982). *Groupthink: Psychological Studies of Policy Decisions and Fiascoes*, (2nd Ed.). Boston, Mass: Houghton Mifflin.

Jeffcutt, P. (1983). "Thought in organizations." *International Studies of Management & Organisation*, **XIII**(3), 35–42.

Johnson, G. (1988). "Rethinking incrementalism." *Strategic Management Journal*, **9**(1), 75–91.

Johnson, P. (2004). "Analytic induction". In Cassell, C. & Symon, G. (Eds.). *Essential Guide to Qualitative Methods in Organisational Research*. London: Sage, 165 – 179.

Johnson, S. & Macintosh, N. (1997). "CATS, RATS and EARS: making the case for ethnographic accounting research." *Accounting Organisations and Society*, **22**(3/4), 367–386.

Johnston, R., Brignall, S. & Fitzgerald, L. (2002). "The involvement of management accountants in operational process change." *International Journal of Operations and Production Management*, **22**(12), 1325–1338.

Jones, T. C. & Dugdale, D. (1994). "Academic and practitioner rationality: the case of investment appraisal." *British Accounting Review*, **26**(1), 3–25.

Kahneman, D. & Frederick, S. (2002). "Representativeness Revisited: Attribute Substitution in Intuitive Judgement." In Gilovich, T., Griffin, D. & Kahneman, D. (Eds.). *Heuristics and Biases*. New York: Cambridge University Press, 49–81.

Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. O. & Rosenthal, R. A. (1964). *Organizational Stress: Studies in Role Conflict and Ambiguity*. New York: John Wiley.

Kahneman, D., Slovic, P. & Tversky, A. (1982). *Judgement under uncertainty: Heuristics & biases*. New York: Cambridge University Press.

Kahneman, D. & Tversky, A. (1982). "On the study of statistical intuitions." *Cognition* **11**(2), 123–141.

Kakkuri-Knuuttila, M. L., Lukka, K., & Kuorikoski, J. (2008). "Straddling between paradigms: a naturalistic philosophical case study on interpretive research in management accounting." *Accounting, Organisation and Society*, **33**(2/3), 267–291.

Katz, D. & Kahn, R. L. (1978). *The Social Psychology of Organisations*, (2nd Ed.). New York: John Wiley.

Keen, P. G. W. (1981). "Information systems and organizational change." *Communications of the ACM*, **24**(1), 24–33.

Kelly, G. A. (1955). *The Psychology of Personal Constructs: A Theory of Personality*. New York: Norton.

Khandawalla, P. N. (1977). *The Design of Organizations*. New York: Harcourt Brace Jovanovich.

King, N. (2004). "Using templates in the thematic analysis of text." In Cassell, C & Symon, G. (Eds.). *Essential Guide to Qualitative Methods in Organisational Research*. London: Sage, 256 – 270.

King P. (1975). "Is the emphasis of capital budgeting theory misplaced?" *Journal of Business Finance and Accounting* **2**(1), 69 – 82.

Kintsch, W. (1998). "The representation of knowledge in minds and machines." *International Journal of Psychology*, **33**(6), 411–420.

Koehler, D. J. (1996). "A strength model of probability judgments for tournaments." *Organizational Behavior & Human Decision Processes*, **66**(1), 16–21.

Lamont, J. (2007). "Data-driven decisions: The view from the dashboard." *KM World*, **16**(3), 14 & 30. [Online]. March 2007, Available at: http://www.kmworld.com/articles [accessed on 20 August 2007]

Larwood, L. & Whittaker, W. (1977). "Managerial myopia: self-servicing biases in organizational planning." *Journal of Applied Psychology*, **62**, 94–198.

Laughlin, R. (1995). "Methodological themes: empirical research in accounting: alternative approaches and a case for "middle-range" thinking." *Accounting, Auditing & Accountability Journal*, **8**(1), 63–87.

Lawrence, P. R. & Lorsch, J. W. (1986). *Organisation and Environment: managing differentiation and integration*. Boston, Mass.: Harvard Business School Press.

Leedy, P. D. (1993). *Practical Research: Planning and Design*. Oxford: Maxwell Macmillan International.

Lillis, A. M. (1999). "A framework for the analysis of interview data from multiple field research." *Accounting and Finance*, **39**(1), 79–105.

Lillis, A. M. (1992). "Sources of influence on capital expenditure decisions: a contextual study of accounting performance measurement." *Management Accounting Research*, **3**(3), 213–227.

Lillis, A. M. & Mundy, J. (2005). "Cross-Sectional Field Studies in Management Accounting Research – Closing the Gaps between Surveys and Case Studies." *Journal of Management Accounting Research*, **17**(1), 119–141.

Lincoln, Y. S. & Guba, E. G. (1994). "Competing paradigms in qualitative research." In Denzin, N. K. & Lincoln, Y. S. (Eds.). *Handbook of Qualitative Research*, 105–117, London: Sage.

Lincoln, Y. S. & Guba, E. G. (2000). "Paradigmatic controversies, contradictions, and emerging confluences." In Denzin, N. K. & Lincoln, Y. S. (Eds.). *Handbook of Qualitative Research*, (2nd Ed.), 163–188, London: Sage.

Lu, Y. & Heard, R. (1995). "Socialised economic action: a comparison of strategic investment decisions in China and Britain." *Organisation Studies*, **16**(3), 395–424.

Lumby, S. & Jones, C. (2003). *Corporate Finance: Theory and Practice*, (7th Ed.). London: Thomson.

Lumijärvi, O. P. (1991). "Selling of Capital Investments to Top Management." *Management Accounting Research*, **2**(2), 171–188.

MacCallum, R. C., Widaman, K. F., Zhang, S. & Hong S. (1999). "Sample size in factor analysis." *Psychological Methods*, **4**(1), 84 – 99.

MacCallum, R. C., Widaman, K. F., Preacher, K. J. & Hong S. (2001). "Sample size in factor analysis: The role of model error." *Multivariate Behavioral Research*, **36**(4), 611–637.

Madsen, T. K. (1998). "Executive Insights: Managerial Judgment of Export Performance". *Journal of International Marketing*, **6**(3), 82–93.

Mangione, T. W. (1995). *Mail Surveys: Improving the Quality*. Applied Social Research Methods Series, Vol. **40**. Thousand Oaks, CA: Sage Publications.

Malmendier, U. & Tate, G. (2005). "CEO overconfidence and corporate investment." *The Journal of Finance*, **LX**(6), 2661–2700.

Marsh, P., Barwise, P., Thomas, K. & Wensley, R. (1988). *Managing SIDs in Large Diversified Companies*. London: London Business School.

Marshall, P. G. & McCormick, B. J. (1986). *Economics of Managerial Decision-Making*. Oxford: Blackwell Basil Ltd.

Martin, B. (1998). *Information Liberation*. London: Freedom Press.

Martin, H. (1994). *The Philosophy of Social Science: An Introduction*. Cambridge: Cambridge University Press.

McCracken, G. (1988). *The Long Interview*. Newbury Park: Sage.

McIntyre, A. D. & Coulthurst, N. J. (1986). *Capital Budgeting Practices in Medium-sized Business - A Survey*. London: CIMA.

McKinley, R. K., Manku-Scott, T., Hastings, A. M., French, D.P., & Baker, R. (1997). "Reliability and validity of a new measure of patient satisfaction with out of hours' primary medical care in the United Kingdom: development of a patient questionnaire." *British Medical Journal*, **314**(7075), 193–198.

Miles, M. B. & Huberman, A. M. (1994). *Quantitative data analysis*, (2nd Ed.). Thousand Oaks, CA: Sage.

Miles, R. E. & Snow, C. C. (1978). *Organisational Strategy, Structure and Process*. New York: McGraw-Hill.

Mills, R. W. (1994). *Finance, Strategy and Strategic Value Analysis: Linking Two Key Business Issues*. Lechlade, Glos.: Mars Business Associates.

Mills, R. W. & Herbert, P. J. A. (1987). *Corporate and Divisional Influence in Capital Budgeting*. London: CIMA.

Miller, D. (1987). "Strategy making and structure: analysis and implications for performance." *Academy of Management Journal*. **30**(1), 7–32.

Mintzberg, H. (1977). "Strategy formulation as a historical process." *International Studies of Management and Organisation*, **7**(2), 28–40.

Mintzberg, H. D., Raisinghani, D. & Théorêt, A. (1976), "The structure of unstructured decision processes", *Administrative Science Quarterly*, **21**(2), 246–275.

Mitroff, I. I. & Emshoff, J. R. (1979). "On strategic assumption-making: a dialectical Approach to Policy and Planning". *Academy of Management Review*, **4**(1), 1–12.

Montgomery, H. (1983). "Decision rules and the search for a dominance structure: towards a process model of decision making." In Humphreys, P., Svenson, O. & Vari, A. (Eds.). *Analysing and Aiding Decision Processes*. Oxford: North Holland Publishing Company, 343–369.

Mouritsen, J. (1996). "Five aspects of accounting departments' work." *Management Accounting Research*, **7**(3), 283–303.

Moustakas, C. (1994). *Phenomenological Research Method*. Thousands Oak, CA: Sage Publications.

Mukherjee, T. K., & Henderson, G. V. (1987). "The Capital Budgeting Process: Theory and Practice." *Interfaces*, **17**(2), 78–90.

Mulligan, E. J. & Hastie, R. (2005). "Explanations determine the impact of information on financial investment judgments." *Journal of Behavioral Decision Making*, **18**(2), 145–156.

Myers, M. D., Gordon, L. & Hamer, M. (1991). "Post auditing capital assets and firm performance: an empirical investigation." *Managerial and Decision Economics*, **12**(4), 317–327.

Narayanan, V. K. & Fahey, L. (1982). "The micro-politics of strategy formulation". *Academy of Management Review*, **7**(1), 25–34.

Neale, C. W. & Buckley, P. J. (1992). "Differential British and US adoption rates of investment project post completion auditing". *Journal of International Business Studies*, **23**(3), 443–459.

Nelson, R. R. & Winter, S. G. (1982). *An evolutionary theory of economic change*. Cambridge MA: Harvard University Press.

Neumann, B. R. & Freidman, L. A. (1978). "Opportunity costs: further evidence through experimental replication." *Journal of Accounting Research*, **16**(2), 400–410.

Newman, I. & Benz, C. R. (1998). *Qualitative-quantitative research methodology: Exploring the interactive continuum*. Carbondale: Southern Illinois University Press.

Northcott, D. (1991). "Rationality and decision making in capital budgeting." *British Accounting Review*, **23**(3), 219–233.

Northcott, D. (1998). *Capital Investment Decision-Making*. London: Thomson.

Northcraft, G. & Neale, M. (1986). "Opportunity costs and the framing of resource allocation decisions." *Organisational Behaviour and Human Decision Processes*, **37**(3), 348–356.

Norton, F. E. (1955). "Administrative organization in capital budgeting." *The Journal of Business*, **28**(4), 291–295.

Nulty, R. (1992). *Cost Management Techniques: A Survey of Current Practices in Irish Industry*. Dublin: Pricewaterhouse in association with Industrial Development Authority.

Nunnally, J. C. (1993). *Psychometric theory* (3rd Ed.). New York: McGraw-Hill.

Otley, D. (1994). "Management control in contemporary organisations: towards a wider framework." *Management Accounting Research*, **5**(3/4), 289–299.

Otley, D. T. (2001). "Extending the boundaries of management accounting research: developing systems for performance management. *British Accounting Review*, **33**(3), 243–261.

Papadakis, V. M. (1998). "Strategic Investment Decision Processes and Organizational Performance: An Empirical Examination." *British Journal of Management*, **9**(2), 115–132.

Patterson, B. (1988). "Still plausible stories: a review of Alfred Chandler's classics". *Academy of Management Review*. **13**(4), 653–656.

Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods*, (3rd Ed.). London: SAGE.

Payne, J., Bettman, J. & Johnson, E. (1993). *The Adaptive Decision Maker*. New York: Cambridge University Press.

Perrewé, P. L., Ferris, G. R., Frink, D. D. & Anthony, W. P. (2000). "Political skill: an antidote for workplace stressors." *Academy of Management Executive*, **14**(3), 115–123.

Personnel Today (2006). "Proportion of female directors at UK's top companies fall to 10%." *Reeds Business Information Ltd.*, Surrey (UK), **November 9, 2006**.

Pettigrew, A. M. (1977). "Strategy formulation as a political process." *International Studies of Management and Organisation*, **7**(2), 78–87.

Pettigrew, A. M. (1973). *The Politics of Organizational Decision-Making*. London: Tavistock.

Pettigrew, A. M. & McNulty, T. (1995). "Power and influence in and around the boardroom." *Human Relations*, **48**(8), 845–873.

Pfeffer, J. (1992). *Managing With Power: Politics and Influence in Organization*. Boston, MA: Harvard Business School Press.

Pierce, B. & O'Dea, T. (2003). "Management accounting information and the needs of managers: perceptions of managers and accountants compared." *British Accounting Review*, **35**(3), 257–290.

Pierce, B. & Tsay, J. (1992). "A study of the post completion audit practices of large American corporations: experience from 1978 to 1988." *Journal of Management Accounting Research*, **4**, 131–149.

Pike, R. (1982). *Capital budgeting in the 1980s: a major survey of investment practices in large companies*. London: Institute of Cost and Management Accountants.

Pike, R. (1984). "Sophisticated capital budgeting systems and their association with corporate performance." *Managerial and Decision Economics*, **5**(2), 91–97.

Pike, R. (1986). "The design of capital budgeting processes and the corporate context." *Managerial and Decision Economics*, **7**(3), 187–195.

Pike, R. H. (1996). "A longitudinal survey on capital budgeting practices." *Journal of Business Finance and Accounting*, **23**(1), 79–92.

Pike, R. & Neale, B. (2003). *Corporate Finance and Investment: Decisions & Strategies* (4th Edition). London: FT Prentice Hall.

Pike, R. & Wolfe, M. (1987). "Capital budgeting for the 1990s". *Occasional Paper*. London: Chartered Institute of Management Accountants.

Pleshko, L. P. (2007). "Strategic orientation, organisational structure, and the associated effects on performance". *Journal of Financial Services Marketing*, **12**(1), 53–64.

Proctor, R. (2006). *Managerial Accounting for Business Decisions*, (2nd Ed.). London: Prentice Hall

Regel, R. W. (2003). "Change in the Controller's role: why intuition improves operational and strategic decisions." *Cost Management*, **17**(1), 31–38.

Reichardt, C. S. & Rallis, S. F. (1994). "Qualitative and quantitative inquiries are not incompatible: A call for a new partnership." In Reichardt, C. S. & Rallis, S. F. (Eds.). *The qualitative-quantitative debate: New perspectives*, 85–92. San Francisco: Jossey-Bass.

Remenyi, D., Williams, B., Money, A. & Swartz, E. (1998). *Doing Research in Business and Management: An Introduction to Process and Method*. London: Sage Publications.

Research & Markets. (2006). *Breweries & the Beer Market - Market Report 2006*. Dublin: Key Note Publications Ltd.

Riahi-Belkaoui, H. (2004). *Accounting Theory*, (5th Ed). London: Thomson.

Riley, M., Wood, R. C., Clark, M. A., Wilkie, E. & Szivas, E. (2000). *Researching and Writing Dissertations in Business and Management*. London: Thomson Learning

Rockley, L. E. (1973). *Investment for Profitability: an analysis of the policies and practices of the U.K. and international companies*. London: Business Books Ltd.

Rowan, R. (1986). *The Intuitive Manager* (1st Ed.). Boston: Little, Brown & Company.

Rutledge, R. & Harrell, A. (1993). "Escalating commitment to an ongoing project: the effects of responsibility and framing of accounting information." *International Journal of Management*, **10**(3), 300–313.

Rutledge, R. & Karim, K. (1999). "The influence of self-interest and ethical considerations on managers' evaluation judgments." *Accounting, Organisations and Society*, **24**(2), 173–184.

Salton, G. J. (2000). "Getting a grip on group behaviour." *Industrial Management* **42**(6): 26–33.

Samuelson, W. & Zeckhauser, R. (1988). "Status quo bias in decision making." *Journal of Risk and Uncertainty*, **I**, 7–59.

Sangster, A. (1993). "Capital investment appraisal techniques: a Survey of current usage." *Journal of Business Finance and Accounting*, **20**(3), 307–332.

Sathe, V. (1982). *Controller Involvement in Management*. Englewood Cliffs, NJ: Prentice Hall.

Sathe, V. J. (1983). "The Controller's Role in Management." *Organizational Dynamics*, **11**(3), 31–48.

Saunders, M., Philip, L. and Thornhill, A. (2007). *Research Methods for Business Students* (4th Ed.). London: FT Prentice Hall.

Saunders, M., Lewis, P. & Thornhill, A. (2003). *Research Methods for Business Students*, (3rd Ed.). London: Prentice Hall.

Scapens, R., Ezzamel, M., Burns, J. & Baldvinsdottir, G. (2003). *The Future Direction of UK Management Accounting Practice*. London: Chartered Institute of Management Accountants.

Scapens, R. W. & Jazayeri, M. (2003). "ERP systems and management accounting change: opportunities or impacts? A research note." *European Accounting Review*, 12(1), 201–233.

Scapens, R. W. & Sale, J. T. (1981). "Performance measurement and formal capital expenditure controls in divisionalized companies." *Journal of Business Finance and Accounting*, **8**(3), 389–419.

Scapens, R. W. & Sale, J. T. (1985). "An international study of accounting practices in divisionalized companies and their associations with organizational variables." *The Accounting Review*, **60**(2), 231–247.

Scapens, R. W., Sale, J. T. & Tikkas, P. A. (1982). *Financial Control of Divisional Capital Investment*. London: The Institute of Cost & Management Accountants.

Schweiger, D. M., Sandberg, W. R. & Ragan, J. W. (1986). "Group approaches for improving strategic decision making: a comparative analysis of dialectical inquiry, devil's advocacy, and consensus." *Academy of Management Journal*, **29**(1): 51–71.

Schwenk, C. R. (1984). "Cognitive simplification processes in strategic decision-making." *Strategic Management Journal*, **5**(2), 111–128.

Schwenk, C. R. (1988). "The cognitive perspective on strategic decision making." *Journal of Management Studies*, **25**(1), 41–55.

Shafir, E., Osherson, D. N. & Smith, E. E. (1993a). "The Advantage Model: a comparative theory of evaluation and choice under risk." *Organizational Behavior and Human Decision Processes*, **55**(3), 325–378.

Shafir, E., Simonson, I. & Tversky, A. (1993b). "Reason-based Choice." *Cognition, Special Issue: Reasoning & Decision Making*, **49**(1-2), 11–36.

Shapiro, S. & Spence, M. T. (1997). "Managerial intuition: a conceptual and operational framework." *Business Horizons*, **40**(1), 63–68.

Siegel, G. (1996). *The Practice Analysis of Management Accounting*. Montvale, NJ: Institute of Management Accountants.

Siegel, G. (2003). "Are you a business partner?" *Strategic Finance*, **85**(3), 39–43.

Siegel, G. & Sorersen, J. E. (1999). *Counting More, Counting Less, the 1999 Practice Analysis of Management Accounting*. Montvale, NJ: Institute of Management Accountants.

Simon, H. A. (1957). *Models of Man*. New York, John Wiley & Sons, Inc.

Simon, H. A. (1960). *The New Science of Management Decision*. New York: Harper and Row.

Simon, H. A. (1976). *Administrative Behaviour: A Study of Decision Making in Administrative Organizations*. New York, Free Press, Collier Macmillan.

Simon, D. & Holyoak, K. J. (2002). "Structural dynamics of cognition: from consistency theories to constraint satisfaction." *Personality & Social Psychology Review (Lawrence Erlbaum Associates)*, **6**(40), 283–294.

Simpson, L. (2003). "Basic instincts." *Training*, **40**(1), 56–59.

Slife, B. D. & Williams, R. N. (1995). *What's behind the research? Discovering hidden assumptions in the behavioral sciences*. London: Sage.

Slovic, P. (1995). "The construction of preference." *American Psychologist*, **50**(5), 364–371.

Slovic, P., Finucane, M. L., Peters, E. & MacGregor, D. G. (2007). "The affect heuristic." *European Journal of Operational Research*, **177**(3), 1333–1352.

Slovic, P., Fischhoff, B. & Lichtenstein, S. (1977). "Behavioural decision theory." *Annual Review of Psychology* **28**, 1–39.

Staw, B. (1981). "The escalation of commitment to a course of action." *Academy of Management Review*, **6**(4), 577–587.

Staw, B. M. (1976). "Knee-deep in the big muddy: a study of escalating commitment to a course of action." *Organisational Behaviour and Human Decision Processes*, **16**(1), 27–44.

Stevens, J. P. (2001). *Applied Multivariate Statistics for the Social Sciences (Applied Multivariate STATS)*, (4th Ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Strauss, A. & Corbin, J. (1998). *Basics of Qualitative Research* (2nd Ed.). Thousand Oaks, CA: Sage.

Streiner, D. L. & Norman, G. R. (2003). *Health Measurement Scales: A Practical Guide to Their Development and Use* (3rd Ed.). Oxford: Oxford University Press.

Svenson, O. (1981). "Are we all less risky and more skillful than our fellow drivers?" *Acta Psychologica*, **47**(2), 143–148.

Tashakkori, A. & Teddlie, C. (1998). *Mixed Methodology: Combining Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage.

Tashakkori, A. & Teddlie, C. (Eds.) (2003). *Handbook of Mixed Methods in Social and Behavioral Research*. London: Sage.

Tesch, R. (1990). *Qualitative Research: Analysis Types and Software Tools.* New York: Falmer.

Tomkins, C. (1991). *Corporate Resource Allocation: Financial, Strategic, and Organisational Perspectives*. Oxford: Basil Blackwell.

Tomkins, C. & Groves, R. (1983). "The everyday accountant and researching his reality." *Accounting, Organizations and Society*, **8**(4), 361–374.

Trabasso, T. & Bartolone, J. (2003). "Story understanding and counterfactual reasoning." *Journal of Experimental Psychology: Learning, Memory, and Cognition* **29**(5), 904–923.

Trochim, W. M. K. (2001). *Research Methods Knowledge Base* (2nd Ed.). Cincinnati, OH: Atomic Dog Publishing.

Tse, A. (1998). "Comparing the response rate, response speed and response quality of two methods of sending questionnaires: E-mail vs. mail." *Journal of the Market Research Society*, **40**(4), 353–361.

Tversky, A. (1972). "Elimination by aspects: a theory of making choice." *Psychological Review*, **79**(4), 281–299.

Tversky, A. & Kahneman, D. (1971). "Belief in the law of small numbers." *Psychological Bulletin*, **76**(2), 105–110.

Tversky, A. & Kahneman, D. (1974). "Judgement under uncertainty: heuristics and biases." *Science*, **185**(4157), 1124 – 1131.

Tversky, A, & Kahneman, D. (1986). "Rational choice and the framing of decisions." *Journal of Business*, **59**(4), S251 – 278.

Vaivio, J. (2004). "Mobilizing local knowledge with 'provocative' non-financial measures." *European Accounting Review*, **13**(1), 39–71.

Vaivio, J. & Kokko, T. (2006). "Counting big: re-examining the concept of the bean counter controller." *The Finnish Journal of Business Economics*, **55**(1), 49–74.

Valle, M. & Perrewe´, P. L. (2000). "Do politics perceptions relate to political behaviours? Tests of an implicit assumption and expanded model." *Human Relations*, **53**(3), 359–386.

Vera-Muñoz, S. (1998). "The effects of accounting knowledge and context on the omission of opportunity costs in resource allocation decisions." *The Accounting Review*, **73**(1), 47–72.

Vigoda, E. (2003). *Developments in Organizational Politics: How Political Dynamics Affect Employee Performance in Modern Work Sites*. Cheltenham: Edward Elgar.

Ward, K. (1993). Corporate *Financial Strategy*. Oxford: Butterworth-Heinemann.

Wei, H. C. & Christodoulou, C. (1997). "An examination of strategic foreign direct investment decisions processes: the case of Taiwanese manufacturing SMEs." *Management Decisions*, **35**(8), 619–630.

Welsh, L. A. & Cyert, R. M. (1970). *Management Decision Making*. Middlesex, England: Penguin Books Ltd.

Whyte, G. (1993). "Escalating commitment in individual and group decision making: a prospect theory approach." *Organizational Behaviour and Human Decision Processes*, **54**(3), 430–455.

Wilson, R. M. S. & Chua, W. F. (1988). *Managerial Accounting: Method and Meaning*, (2nd Ed.). London: International Thomson Business Press.

Yang, B. (2003). "Political Factors in decision making and implications for HRD." *Advances in Developing Human Resources*, **5**(4), 458–479.

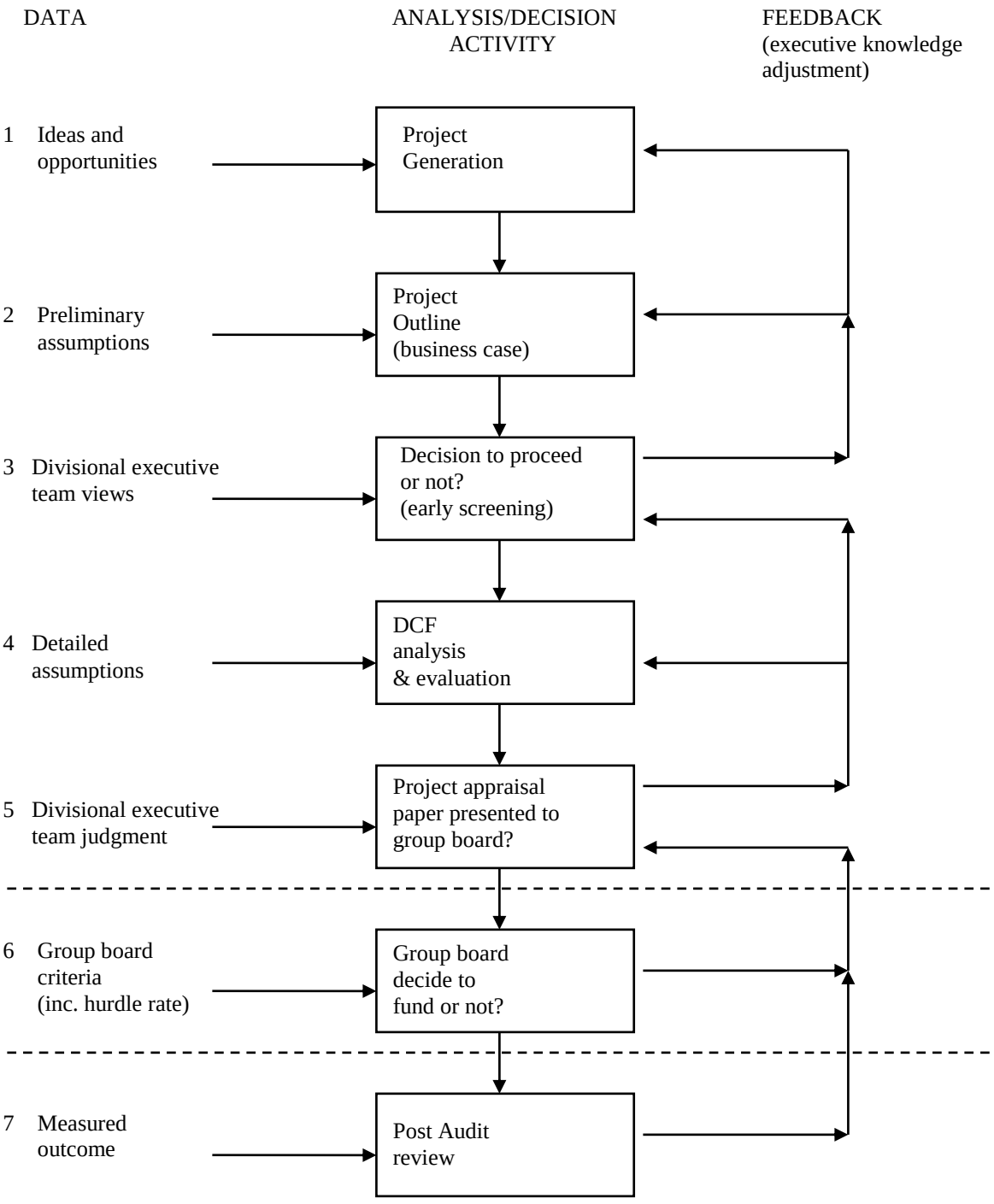
Yin, R. K. (2003). *Case Study Research: Design and methods*. London: Sage Publications.

Zahra, S. & Pearce, J. (1990). "Research evidence on the Miles – Snow typology." *Journal of Management*, **16**(4), 751–768.

Appendixes

Appendix 1

Strategic Investment Appraisal Process



Source: Harris (1999)

Appendix 2 – The Research Instrument

Cover Letter

Dear Respondent,

Managerial Judgement & Strategic Investment Decisions (SIDs) - Research Instrument

We are seeking to collect data on strategic investment decisions (SIDs) from managers who have some involvement in the Strategic Investment Decision-making process. We very much appreciate your participation in this study and hope that you will be interested in our findings (see feedback form). By completing this questionnaire, you will be contributing to research on better decision-making.

Thank you for agreeing to complete the questionnaire on managerial judgement and strategic investment decisions, which will take no longer than 15 minutes.

Confidentiality

We intend to collate the questionnaire data and use it strictly for the purpose of the research on Managerial Judgement. The data will be kept confidential and will be protected from unauthorised access, damage or destruction. Data will be aggregated for the purpose of the study and anonymity of the participants safeguarded.

Please return the completed questionnaire in the Reply Paid Envelope provided. If you need any help with completing the questionnaire, please contact Samuel: skomakech@dmu.ac.uk.

Professor
Leicester Business School
De Montfort University
The Gateway, Leicester
LE1 9BH

The Questionnaire

Thank you for agreeing to complete this questionnaire, which should take about 15 minutes of your time. The questionnaire is divided into 4 sections (A to D). Please complete all the sections.

Section A - Background Information

1. **What is the name of your company?** _____
2. **What is your Job Title?** _____
3. **What is your professional background?**
   - ☐ Accounting (Financial)
   - ☐ Accounting (Management)
   - ☐ Engineering
   - ☐ Finance
   - ☐ Information Systems
   - ☐ Legal
   - ☐ Marketing
   - ☐ Other *(please specify)*
4. **How long have you worked for the company?**
   - ◯ 0 - 5 years
   - ◯ 6 - 10 years
   - ◯ 11 - 15 years
   - ◯ 16 - 20 years
   - ◯ 21+ years
5. **How long have you been in your current position?**
   - ◯ 0 - 5 years
   - ◯ 6 - 10 years
   - ◯ 11 - 15 years
   - ◯ 16 - 20 years
   - ◯ 21+ years
6. **Had you worked in a similar position in other companies before?**
   - ◯ Yes
   - ◯ No

   If No go to Section B
7. **How long had you worked in a similar position in other companies before joining the current company?**
   - ◯ 0 - 5 years
   - ◯ 6 - 10 years
   - ◯ 11 - 15 years
   - ◯ 16 - 20 years
   - ◯ 21+ years

Guidance on Completing Sections B and C

Please read and answer the following questions with specific strategic investment decision or decisions (SIDs), in which you were involved, in mind.

For the purpose of this research study, we have defined SIDs to include decisions concerning long term investment in risky capital assets (e.g. the purchase or expansion of equipment or production facilities; or expenditures with direct impact on the company's ability to meet its strategic objectives).

Where explanation is required, please write in as much detail as possible in the space provided. Further guidance is provided after the particular questions concerned.

Section B - Involvement in SIDs

8. What types of SID have you been involved with? (*please select all that apply*)

- ☐ New product development
- ☐ New market development (new customers/clients)
- ☐ New site or site development (operating facilities e.g. new location, relocation, expansion)
- ☐ New technology or infrastructure e.g. computer system development/replacement
- ☐ Acquisitions of business assets or companies
- ☐ Compliance (new legislation e.g. health & safety)
- ☐ Other (e.g. decommissioning, downsizing, business process design), *please specify*

***Please choose the* SPECIFIC PROJECT *that you will focus on when answering the following questions*.**

9. Which type of project will be the focus of your answers?

- ◯ New product development
- ◯ New market development (new customers/clients)
- ◯ New site or site development (operating facilities e.g. new location, relocation, expansion)
- ◯ New technology or infrastructure e.g. computer system development/replacement
- ◯ Acquisitions of business assets or companies
- ◯ Compliance (new legislation e.g. health & safety)
- ◯ Other (e.g. decommissioning, downsizing, business process design), *please specify*

10. For the specific project you have in mind, which of the following stages applies in your company and which were you personally involved in? (*please select all that apply*)

	Does it Apply in Your Company?	Were You Involved?
Scanning for project opportunities	☐	☐
Defining possible projects and formulating alternatives or strategic options	☐	☐
Generation of project data	☐	☐
Making preliminary assumptions; shaping project outline	☐	☐
Early screening: discussion of project idea to decide if it should be pursued	☐	☐
Estimation of cash flow / financial data	☐	☐
Formal evaluation of the project: using project appraisal techniques e.g. Discounted Cash Flow (DCF)	☐	☐
Progression through the company; persuading senior managers to support the project	☐	☐
Authorisation of the project	☐	☐
Post-audit Evaluation (project review)	☐	☐
Other stages (*please specify*)		☐

11. Did your involvement require formal[¥] meetings with other managers within your company? (¥ for the purposes of this questionnaire, 'formal' is defined as planned, of a formally recognised group, e.g. divisional board, formal committee, routine project team, or advisory group)

- ◯ Yes
- ◯ No

If No, go to question 13

12. Please give the job titles of all the internal managers involved in the formal meetings (*please select all that apply or the nearest equivalent*).

- ☐ Business Development Manager
- ☐ Finance Manager / Management Accountant
- ☐ Marketing Manager
- ☐ IT Manager
- ☐ Operations Manager
- ☐ Project Manager
- ☐ Production Manager
- ☐ Others (please specify) _____

13. Did your involvement require formal meetings with other managers outside your company?

- ○ Yes
- ○ No (*If No, go to question 16*)

14. What did the external managers represent in terms of the specific project? (*please select all that apply*)

- ☐ Supplier Organisations
- ☐ Customer Organisations
- ☐ Financing Organisations
- ☐ Consultants
- ☐ Government Departments
- ☐ Others (please specify) _____

15. Please give the job titles of the external managers involved in the formal meetings (*please select all that apply*).

- ☐ Business Development Manager
- ☐ Finance Manager
- ☐ Marketing Manager
- ☐ IT Manager
- ☐ Operations Manager
- ☐ Project Manager
- ☐ Production Manager
- ☐ Others (please specify) _____

16. In your opinion did the meetings attempt to:

	Yes	No
Gather views from various constituencies or stakeholders?	○	○
Evaluate the risk involved in the project?	○	○
Handle any complexity by constructing a model?	○	○
Identify key success factors?	○	○
Attach probabilities to alternative outcomes?	○	○
Reach consensus amongst the various participants or constituencies on relevant issues?	○	○
Reach a decision on the desirability of the project?	○	○
Reach a conclusion on the issues being discussed?	○	○
Resolve other issue(s)? Please specify _____		

17. Please give a brief description of your involvement in the meeting(s). What role did you play in the proceeding(s) e.g. presenting information, promoting the project, active or passive role, devil's advocate, etc?

From question 18 onwards, where you are asked to rank your chosen option, the scales 5 to 1 mean the following: 5 = to a great extent; 4 = considerable extent; 3 = reasonable extent; 2 = some extent and 1 = hardly at all.

18. To what extent did you use the following during the SID? (*please rank on a scale of: 5 – to a great extent to 1 – hardly at all*)

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
gut feeling or hunches or flashes of ideas	○	○	○	○	○	○
mental pictures of the SID in your mind	○	○	○	○	○	○
brainstorming	○	○	○	○	○	○
industry's rule of thumb	○	○	○	○	○	○
other (please specify) _____	○	○	○	○	○	○

19. To what extent were the following important during the SID? (*please rank on a scale of: 5 – to a great extent to 1 – hardly at all*)

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
comparing and contrasting new project opportunities with similar projects you were previously involved with	○	○	○	○	○	○
use of stereotypes to classify projects	○	○	○	○	○	○
use of base value from previous projects and tolerance ranges	○	○	○	○	○	○
use of industry benchmark to evaluate the SID	○	○	○	○	○	○
use of other benchmarks to evaluate the SID (please specify) _____	○	○	○	○	○	○

Section C - Influences on SIDs

20. Recollecting your involvement in the decision-making process, to what extent was each of the following aspects of your personal knowledge and experience important in influencing the SID? (*please rank on a scale of 5 – to a great extent* to *1 – hardly at all*)

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
Technical experience	○	○	○	○	○	○
Managerial experience	○	○	○	○	○	○
Knowledge of competitors	○	○	○	○	○	○
Your professional background	○	○	○	○	○	○
Knowledge of inner workings / processes within your company	○	○	○	○	○	○
Knowledge of strategy formulation in your company	○	○	○	○	○	○
Knowledge and experience of other managers involved in the SID process	○	○	○	○	○	○
Others (please specify) _____	○	○	○	○	○	○

21. Did your views of the project change as a result of receiving more up-to-date (real time) information about the following?

	Yes	No
Change in the definition of the project	○	○
Technological issues	○	○
Logistical issues	○	○
The impact of financial projections	○	○
The need to act quickly to meet datelines	○	○
Other information (*please specify*)		

22. To what extent were the following aspects of the SID considered problematic? (*please rank on a scale of 5 – to a great extent to 1 – hardly at all*)

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
Specific objectives of the SID	○	○	○	○	○	○
Overall strategic objectives of the organisation	○	○	○	○	○	○
Procedures for evaluating the SID	○	○	○	○	○	○
Personal agendas	○	○	○	○	○	○
The pace at which matters should proceed	○	○	○	○	○	○
Issues of professional ethics and responsibility	○	○	○	○	○	○
The track record of the proposer of the SID	○	○	○	○	○	○
others (*please specify*)	○	○	○	○	○	○

23. To what extent did you have access to the following information for your specific project? (*Please rank, on a scale of 5 – to a great extent to 1 – hardly at all, the extent to which the information was available.)*

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
Market research (e.g. market size, share, growth, competitors' action, product price changes, etc)	○	○	○	○	○	○
Information on customers / users	○	○	○	○	○	○
Supply chain information	○	○	○	○	○	○
Suppliers' views	○	○	○	○	○	○
Views of employees at operational level	○	○	○	○	○	○
Information on shareholders' views	○	○	○	○	○	○
Other stakeholders information e.g. government	○	○	○	○	○	○
Financial projections	○	○	○	○	○	○
Business risk factors	○	○	○	○	○	○
others (*please specify*)	○	○	○	○	○	○

24. Were any of the following used during the SID process? (*please indicate whether or not the process is applicable in your company and whether or not you were involved in the process*)

	Does it Apply in Your Company?	Were You Involved?
Informal (ad hoc rather than routine, planned within shorter notice) meetings	☐	☐
Corridor (unscheduled) meetings and internal lobbying	☐	☐
Political lobbying with external agencies e.g. government department, trade associations, etc.	☐	☐
Using informal opportunities (e.g. at social functions) to influence decision making	☐	☐
Other informal process(es): *please specify*		☐

25. For the specific project, to what extent did each of the following alter your opinion on the SID? (*please rank on a scale of: 5 – to a great extent to 1 – hardly at all*)

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
Discussion during formal meetings	○	○	○	○	○	○
Informal discussions and interaction with managers involved in the SID	○	○	○	○	○	○
Discussions and interaction with other managers not involved in the SID	○	○	○	○	○	○
Views of the Company's top management φ	○	○	○	○	○	○
others (*please specify*)						
	○	○	○	○	○	○
	○	○	○	○	○	○

φ For this research study, we have defined 'top management' to include head office management, senior management, or group management. As the use of the term may differ from company to company, please keep this in mind when completing this questionnaire.

26. To what the extent did the following occur during the SID? (*please rank on a scale of 5 – to a great extent to 1 – hardly at all*)

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
people formed temporary alliances or subgroups expressly for the purpose of this SID	○	○	○	○	○	○
disagreement was evident during the SID process	○	○	○	○	○	○
the proposer's track record with SIDs influenced the SID	○	○	○	○	○	○
agreement was reached after considerable compromise	○	○	○	○	○	○
other examples of group behaviour (*please specify*)						
	○	○	○	○	○	○

27. To what extent was each of the following important in gaining a consensus on the SID? (*please rank on a scale of: 5 – to a great extent to 1 – hardly at all*)

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
Managers who are socially compatible	○	○	○	○	○	○
Like -minded managers with similar experience in the industry	○	○	○	○	○	○
Managers with very different experiences	○	○	○	○	○	○
Managers with very different skills	○	○	○	○	○	○
Managers who speak their minds forthrightly	○	○	○	○	○	○
Managers who respect superiors' opinions	○	○	○	○	○	○
Managers trained in negotiating skills	○	○	○	○	○	○
Others (please specify)	○	○	○	○	○	○

28. To what extent was each of the following used to assess the risk(s) associated with the SID(s)? (*please rank on a scale of 5 – to a great extent to 1 – hardly at all*)

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
Evaluation of expected outcomes (based on probability or likelihood of alternative outcomes)	○	○	○	○	○	○
Comparison with risk profile of past projects	○	○	○	○	○	○
Intuition	○	○	○	○	○	○
others (*please specify*)	○	○	○	○	○	○

29. To what extent does your company require each of the following during SID making process? (*please rank on a scale of 5 – to a great extent to 1 – hardly at all*)

	TO A GREAT EXTENT 5	4	3	2	HARDLY AT ALL 1	NOT APPLICABLE
A set of standard procedures (e.g. following a procedures manual or standard instructions) to be employed when assessing SIDs	○	○	○	○	○	○
Assumptions underlying your decision to be stated	○	○	○	○	○	○
Top management's approval	○	○	○	○	○	○
Dissenting opinions to be reported	○	○	○	○	○	○
An individual manager to champion and be responsible for the SID	○	○	○	○	○	○
others (*please specify*)	○	○	○	○	○	○

30. Which of the following Decision Support Software (DSS) did you use for appraising the SID

- ☐ Spreadsheet Model
- ☐ Specific Decision Support Package
- ☐ Decision Trees
- ☐ Critical Path Analysis
- ☐ Other (please specify)
- ☐ No DSS was used

Section D – Concluding Section

31. To what extent is the SID-making process for the specific project you had in mind typical in your organisation in terms of the normal procedures used in your organisation?

TO A GREAT EXTENT				HARDLY AT ALL
5	**4**	**3**	**2**	**1**
○	○	○	○	○

32. What suggestions would you offer to improve the SID-Making process in your organisation?

Thank you for your help with this questionnaire. You may now complete the feedback form on the next page.

Managerial Judgement & Strategic Investment Decisions (SIDs)

Feedback Form

A We are interested in the results of the study and would like to have a copy:

Name of Company:

Address:

Telephone:

Email:

B The researchers would like to organise a feedback forum, would you welcome a meeting to discuss managerial judgement during SID-Making process?

○ **Yes** ○ **No**

If you have answered Yes, Please supply the following information:

Name:

Telephone:

Email:

Please return the completed questionnaire in the envelope provided

Appendix 3 – Factor Analysis

3a – Descriptive Statistics

	Mean	Std. Deviation	Analysis N	Missing N
Brainstorming	3.13	1.30	104	1
Industry's rule of thumb	2.63	1.36	103	2
Comparing & contrasting new with previous	3.50	1.39	105	0
Managerial experience	3.79	1.15	104	1
Knowledge of competitors	2.89	1.41	103	2
Knowledge of strategy formulation	3.80	0.93	104	1
Personal agendas	2.41	1.39	101	4
Financial projections	4.16	1.12	105	0
Informal discussions & interactions	3.46	1.12	105	0
Views of companies top management	3.49	1.25	104	1
Temporary alliances or subgroups formed	2.70	1.53	104	1
Managers who are socially compatible	2.32	1.35	102	3
Managers with very different skills	3.27	1.28	102	3
Managers who respect superiors' opinions	2.55	1.41	103	2
Managers trained in negotiating skills	2.76	1.37	103	2
Evaluation of expected outcomes (probability)	3.58	1.49	103	2
Comparison with risk profile of past projects	2.82	1.52	102	3
Individual manager to champion and be responsible	3.98	1.22	104	1

3b – Correlation Matrix [a]

Correlation

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18
V1	1.000																	
V2	0.132	1.000																
V3	0.045	0.218	1.000															
V4	0.252	0.010	0.174	1.000														
V5	0.253	0.159	0.294	0.313	1.000													
V6	0.303	0.046	0.120	0.498	0.469	1.000												
V7	0.177	0.098	-0.034	0.181	0.013	0.089	1.000											
V8	-0.133	0.269	0.114	0.163	0.178	0.097	-0.038	1.000										
V9	0.241	0.102	0.234	0.233	0.111	0.144	0.078	0.056	1.000									
V10	-0.098	0.115	0.265	-0.013	0.151	0.026	-0.005	0.328	0.198	1.000								
V11	0.221	0.154	0.039	0.201	0.038	0.188	0.235	0.174	0.278	0.102	1.000							
V12	0.281	0.112	0.171	0.286	0.016	0.130	0.362	-0.090	0.292	0.120	0.251	1.000						
V13	0.420	0.302	0.075	0.144	0.200	0.286	0.410	0.084	0.206	0.046	0.276	0.292	1.000					
V14	0.336	0.203	0.109	-0.024	0.103	0.077	0.297	-0.008	0.161	0.062	0.230	0.294	0.354	1.000				
V15	0.330	0.182	0.130	0.183	0.071	0.275	0.262	0.030	0.206	-0.025	0.376	0.346	0.389	0.346	1.000			
V16	0.018	0.332	0.290	0.072	0.253	0.202	0.132	0.402	0.155	0.190	0.093	-0.013	0.237	0.083	0.233	1.000		
V17	0.088	0.280	0.602	0.136	0.295	0.234	-0.004	0.257	0.092	0.186	0.078	0.183	0.323	0.088	0.307	0.434	1.000	
V18	0.260	0.035	0.023	0.190	0.060	0.184	0.135	0.215	0.176	0.010	0.406	0.327	0.293	0.243	0.323	0.081	0.161	1.000

a **Determinant = 0.007**

Correlation Matrix [a]

Sig. (1-tailed)

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18
V1																		
V2	0.092																	
V3	0.325	0.014																
V4	0.005	0.460	0.039															
V5	0.005	0.055	0.001	0.001														
V6	0.001	0.321	0.113	0.000	0.000													
V7	0.039	0.168	0.366	0.035	0.449	0.187												
V8	0.088	0.003	0.123	0.049	0.036	0.164	0.352											
V9	0.007	0.152	0.008	0.009	0.133	0.072	0.218	0.287										
V10	0.162	0.126	0.003	0.449	0.065	0.396	0.481	0.000	0.022									
V11	0.013	0.061	0.348	0.021	0.350	0.028	0.009	0.039	0.002	0.153								
V12	0.002	0.135	0.043	0.002	0.438	0.097	0.000	0.184	0.001	0.115	0.005							
V13	0.000	0.001	0.226	0.076	0.023	0.002	0.000	0.201	0.019	0.322	0.002	0.002						
V14	0.000	0.021	0.138	0.407	0.153	0.221	0.001	0.468	0.052	0.266	0.010	0.001	0.000					
V15	0.000	0.034	0.095	0.033	0.240	0.003	0.004	0.383	0.018	0.403	0.000	0.000	0.000	0.000				
V16	0.427	0.000	0.001	0.236	0.005	0.021	0.097	0.000	0.059	0.028	0.175	0.450	0.009	0.203	0.009			
V17	0.191	0.002	0.000	0.087	0.001	0.009	0.485	0.005	0.178	0.031	0.218	0.033	0.001	0.190	0.001	0.000		
V18	0.004	0.365	0.409	0.027	0.273	0.032	0.090	0.014	0.037	0.461	0.000	0.000	0.001	0.007	0.000	0.207	0.053	

[a] **Determinant = 0.007**

3c – Inverse Correlation Matrix

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18
V1	1.595																	
V2	-0.095	1.339																
V3	0.058	-0.144	1.948															
V4	-0.193	0.106	-0.267	1.728														
V5	-0.277	-0.070	-0.242	-0.190	1.557													
V6	-0.097	0.131	0.188	-0.672	-0.551	1.759												
V7	0.135	0.071	0.036	-0.264	0.025	0.139	1.514											
V8	0.301	-0.311	0.273	-0.428	-0.078	0.141	0.111	1.696										
V9	-0.157	0.035	-0.304	-0.187	0.039	0.050	0.184	0.058	1.334									
V10	0.139	0.076	-0.259	0.251	-0.136	-0.044	0.020	-0.457	-0.191	1.331								
V11	-0.028	-0.124	-0.001	-0.061	0.095	-0.094	-0.164	-0.159	-0.220	-0.104	1.452							
V12	-0.079	-0.133	-0.044	-0.378	0.175	0.093	-0.403	0.331	-0.226	-0.276	0.041	1.672						
V13	-0.414	-0.284	0.358	0.155	-0.040	-0.222	-0.559	0.019	-0.164	-0.033	-0.036	0.026	1.872					
V14	-0.261	-0.115	-0.203	0.320	-0.114	0.028	-0.222	-0.034	-0.009	-0.042	-0.028	-0.155	-0.169	1.433				
V15	-0.156	-0.025	0.103	-0.014	0.202	-0.222	-0.067	0.124	-0.042	0.132	-0.326	-0.189	-0.078	-0.267	1.631			
V16	0.071	-0.233	-0.088	0.179	-0.114	-0.171	-0.299	-0.453	-0.210	-0.012	0.108	0.239	-0.002	0.055	-0.221	1.618		
V17	0.108	-0.034	-1.165	0.126	-0.109	-0.124	0.314	-0.238	0.304	0.039	0.127	-0.259	-0.584	0.216	-0.380	-0.398	2.286	
V18	-0.149	0.229	0.090	0.012	0.036	-0.031	0.135	-0.404	-0.005	0.156	-0.379	-0.354	-0.158	-0.133	-0.108	0.039	-0.101	1.494

3d – Anti-image Matrices

Anti-image Covariance

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18
V1	0.627																	
V2	-0.045	0.747																
V3	0.019	-0.055	0.513															
V4	-0.070	0.046	-0.079	0.579														
V5	-0.112	-0.033	-0.080	-0.070	0.642													
V6	-0.034	0.056	0.055	-0.221	-0.201	0.568												
V7	0.056	0.035	0.012	-0.101	0.011	0.052	0.660											
V8	0.111	-0.137	0.082	-0.146	-0.030	0.047	0.043	0.590										
V9	-0.074	0.019	-0.117	-0.081	0.019	0.021	0.091	0.026	0.750									
V10	0.066	0.043	-0.100	0.109	-0.066	-0.019	0.010	-0.202	-0.107	0.751								
V11	-0.012	-0.064	-0.000	-0.024	0.042	-0.037	-0.074	-0.065	-0.113	-0.054	0.689							
V12	-0.030	-0.059	-0.013	-0.131	0.067	0.032	-0.159	0.117	-0.101	-0.124	0.017	0.598						
V13	-0.138	-0.113	0.098	0.048	-0.014	-0.068	-0.197	0.006	-0.066	-0.013	-0.013	0.008	0.534					
V14	-0.114	-0.060	-0.073	0.129	-0.051	0.011	-0.102	-0.014	-0.005	-0.022	-0.013	-0.065	-0.063	0.698				
V15	-0.060	-0.012	0.033	-0.005	0.080	-0.077	-0.027	0.045	-0.019	0.061	-0.138	-0.069	-0.026	-0.114	0.613			
V16	0.028	-0.108	-0.028	0.064	-0.045	-0.060	-0.122	-0.165	-0.097	-0.006	0.046	0.088	-0.001	0.024	-0.084	0.618		
V17	0.030	-0.011	-0.262	0.032	-0.031	-0.031	0.091	-0.062	0.100	0.013	0.038	-0.068	-0.136	0.066	-0.102	-0.108	0.438	
V18	-0.063	0.115	0.031	0.005	0.015	-0.012	0.060	-0.159	-0.002	0.078	-0.175	-0.142	-0.056	-0.062	-0.044	0.016	-0.030	0.669

Anti-image Correlation

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18
V1	**0.807** [a]																	
V2	-0.065	**0.763** [a]																
V3	0.033	-0.089	**0.621** [a]															
V4	-0.116	0.070	-0.145	**0.638** [a]														
V5	-0.176	-0.048	-0.139	-0.116	**0.766** [a]													
V6	-0.058	0.086	0.101	-0.386	-0.333	**0.733** [a]												
V7	0.087	0.050	0.021	-0.163	0.016	0.085	**0.645** [a]											
V8	0.183	-0.206	0.150	-0.250	-0.048	0.082	0.069	**0.558** [a]										
V9	-0.108	0.026	-0.189	-0.123	0.027	0.032	0.129	0.039	**0.736** [a]									
V10	0.096	0.057	-0.161	0.166	-0.095	-0.029	0.014	-0.304	-0.143	**0.593** [a]								
V11	-0.018	-0.089	-0.000	-0.039	0.063	-0.059	-0.110	-0.101	-0.158	-0.075	**0.813** [a]							
V12	-0.048	-0.089	-0.024	-0.222	0.108	0.054	-0.253	0.197	-0.152	-0.185	0.026	**0.733** [a]						
V13	-0.239	-0.179	0.187	0.086	-0.023	-0.123	-0.332	0.011	-0.104	-0.021	-0.022	0.015	**0.781** [a]					
V14	-0.173	-0.083	-0.121	0.203	-0.076	0.018	-0.151	-0.022	-0.006	-0.031	-0.019	-0.100	-0.103	**0.793** [a]				
V15	-0.097	-0.017	0.058	-0.008	0.127	-0.131	-0.043	0.074	-0.029	0.090	-0.212	-0.114	-0.045	-0.175	**0.845** [a]			
V16	0.044	-0.158	-0.050	0.107	-0.072	-0.101	-0.191	-0.274	-0.143	-0.008	0.071	0.145	-0.001	0.036	-0.136	**0.757** [a]		
V17	0.057	-0.020	-0.552	0.063	-0.058	-0.062	0.169	-0.121	0.174	0.022	0.070	-0.132	-0.282	0.119	-0.197	-0.207	**0.665** [a]	
V18	-0.097	0.162	0.052	0.008	0.023	-0.019	0.090	-0.254	-0.003	0.111	-0.257	-0.224	-0.094	-0.091	-0.069	0.025	-0.055	**0.749** [a]

[a] **Measures of Sampling Adequacy(MSA)**

3e – Communalities

	Initial	Extraction
Brainstorming	1.000	0.550
Industry's rule of thumb	1.000	0.481
Comparing & contrasting new with previous	1.000	0.753
Managerial experience	1.000	0.657
Knowledge of competitors	1.000	0.600
Knowledge of strategy formulation	1.000	0.709
Personal agendas	1.000	0.380
Financial projections	1.000	0.771
Informal discussions & interactions	1.000	0.485
Views of companies top management	1.000	0.517
Temporary alliances or subgroups formed	1.000	0.576
Managers who are socially compatible	1.000	0.619
Managers with very different skills	1.000	0.610
Managers who respect superiors' opinions	1.000	0.488
Managers trained in negotiating skills	1.000	0.481
Evaluation of expected outcomes (probability)	1.000	0.590
Comparison with risk profile of past projects	1.000	0.644
Individual manager to champion and be responsible	1.000	0.504

Extraction Method: Principal Component Analysis.

3f – Component Matrix [a]

	Component				
	1	2	3	4	5
Managers with very different skills	0.664				
Managers trained in negotiating skills	0.628				
Comparison with risk profile of past projects	0.550	0.503			
Managers who are socially compatible	0.530				0.441
Brainstorming	0.526				
Temporary alliances or subgroups formed	0.517			0.459	
Individual manager to champion and be responsible	0.499			0.409	
Managers who respect superiors' opinions	0.476				
Informal discussions & interactions	0.453				0.447
Industry's rule of thumb	0.414				
Personal agendas	0.406				
Financial projections		0.538		0.464	
Evaluation of expected outcomes (probability)	0.459	0.511			
Views of companies top management		0.436			
Knowledge of strategy formulation	0.527		- 0.623		
Managerial experience	0.467		- 0.607		
Knowledge of competitors	0.444		- 0.490		
Comparing & contrasting new with previous	0.420	0.512			0.521

Extraction Method: Principal Component Analysis.

[a] 5 components extracted.

3g – Reproduced Correlation

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18
V1	**0.550** [b]																	
V2	0.088	**0.481** [b]																
V3	0.069	0.252	**0.753** [b]															
V4	0.334	-0.107	0.148	**0.657** [b]														
V5	0.260	0.163	0.356	0.444	**0.600** [b]													
V6	0.405	0.045	0.144	0.617	0.575	**0.709** [b]												
V7	0.343	0.181	-0.070	0.051	-0.029	0.090	**0.380** [b]											
V8	-0.215	0.297	0.098	0.123	0.181	0.152	-0.058	**0.771** [b]										
V9	0.184	0.011	0.342	0.306	0.096	0.153	0.126	0.060	**0.485** [b]									
V10	-0.200	0.153	0.410	0.043	0.038	-0.075	-0.095	0.379	0.316	**0.517** [b]								
V11	0.216	0.117	-0.061	0.269	-0.007	0.186	0.310	0.301	0.323	0.171	**0.576** [b]							
V12	0.373	0.046	0.253	0.237	0.010	0.114	0.319	-0.157	0.475	0.153	0.365	**0.619** [b]						
V13	0.456	0.381	0.114	0.156	0.222	0.294	0.422	0.083	0.141	-0.054	0.325	0.318	**0.610** [b]					
V14	0.352	0.285	0.108	-0.031	-0.019	0.021	0.399	-0.093	0.177	-0.014	0.263	0.391	0.474	**0.488** [b]				
V15	0.417	0.274	0.122	0.199	0.153	0.252	0.391	0.059	0.242	0.018	0.374	0.397	0.518	0.434	**0.481** [b]			
V16	0.021	0.475	0.329	0.055	0.332	0.207	0.061	0.507	0.036	0.257	0.132	-0.050	0.313	0.133	0.212	**0.590** [b]		
V17	0.142	0.420	0.613	0.144	0.425	0.250	0.045	0.266	0.214	0.312	0.036	0.157	0.308	0.192	0.242	0.505	**0.644** [b]	
V18	0.241	0.095	-0.075	0.297	0.036	0.234	0.295	0.265	0.290	0.118	0.535	0.334	0.321	0.239	0.359	0.117	0.028	**0.504** [b]

Extraction Method: Principal Component Analysis. [b] Reproduced communalities.

Reproduced Correlation

Residual [a]

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18
V1																		
V2	0.043																	
V3	-0.024	-0.035																
V4	-0.081	0.117	0.025															
V5	-0.007	-0.004	-0.061	-0.132														
V6	-0.103	0.001	-0.024	-0.119	-0.106													
V7	-0.166	-0.083	0.036	0.130	0.042	-0.001												
V8	0.081	-0.029	0.016	0.040	-0.004	-0.055	0.019											
V9	0.057	0.091	-0.108	-0.073	0.014	-0.008	-0.048	-0.005										
V10	0.101	-0.039	-0.145	-0.056	0.113	0.101	0.090	-0.051	-0.118									
V11	0.005	0.037	0.100	-0.068	0.045	0.002	-0.075	-0.127	-0.044	-0.069								
V12	-0.092	0.066	-0.082	0.049	0.006	0.016	0.043	0.067	-0.183	-0.033	-0.114							
V13	-0.036	-0.078	-0.038	-0.013	-0.023	-0.008	-0.012	0.001	0.066	0.100	-0.049	-0.027						
V14	-0.016	-0.082	0.001	0.007	0.122	0.056	-0.101	0.085	-0.017	0.076	-0.034	-0.097	-0.120					
V15	-0.087	-0.093	0.008	-0.016	-0.082	0.023	-0.129	-0.029	-0.036	-0.043	0.002	-0.051	-0.129	-0.088				
V16	-0.002	-0.143	-0.039	0.017	-0.079	-0.005	0.071	-0.105	0.118	-0.067	-0.039	0.037	-0.076	-0.050	0.021			
V17	-0.054	-0.140	-0.011	-0.007	-0.129	-0.015	-0.049	-0.009	-0.122	-0.126	0.042	0.026	0.014	-0.104	0.065	-0.072		
V18	0.019	-0.060	0.098	-0.107	0.024	-0.050	-0.160	-0.051	-0.114	-0.108	-0.128	-0.007	-0.028	0.004	-0.036	-0.035	0.133	

Extraction Method: Principal Component Analysis.

[a] Residuals are computed between observed and reproduced correlations. There are 79 (51.0%) nonredundant residuals with absolute values greater than 0.05.

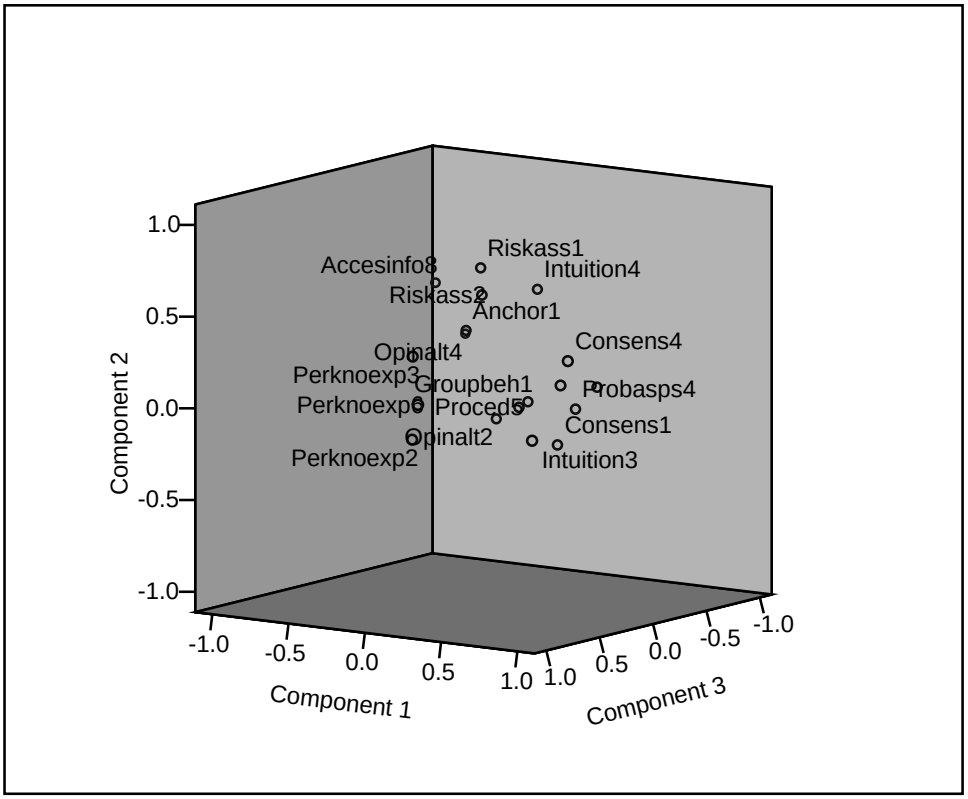
3h – Component Transformation Matrix

Component	1	2	3	4	5
1	0.633	0.409	0.452	0.368	0.304
2	-0.608	0.736	0.103	0.230	-0.158
3	0.270	0.353	-0.877	0.088	0.161
4	-0.395	-0.202	-0.022	0.211	0.871
5	-0.038	-0.354	-0.124	0.871	-0.314

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Component Plot in Rotated Space



3i – Component Score Coefficient Matrix

	Component				
	1	**2**	**3**	**4**	**5**
Brainstorming	0.225	- 0.092	0.178	- 0.055	- 0.130
Industry's rule of thumb	0.135	0.314	- 0.124	- 0.107	- 0.064
Comparing & contrasting new with previous	- 0.031	0.090	0.021	0.434	- 0.284
Managerial experience	- 0.111	- 0.155	0.386	0.073	0.144
Knowledge of competitors	- 0.054	0.103	0.355	- 0.050	- 0.145
Knowledge of strategy formulation	- 0.039	- 0.016	0.434	- 0.128	0.026
Personal agendas	0.236	0.001	- 0.076	- 0.089	0.046
Financial projections	- 0.206	0.289	- 0.010	- 0.114	0.421
Informal discussions & interactions	- 0.022	- 0.149	- 0.000	0.405	0.111
Views of companies top management	- 0.159	0.078	- 0.135	0.363	0.164
Temporary alliances or subgroups formed	0.034	- 0.036	- 0.042	0.025	0.416
Managers who are socially compatible	0.156	- 0.189	- 0.061	0.348	0.014
Managers with very different skills	0.263	0.136	0.008	- 0.155	- 0.035
Managers who respect superiors' opinions	0.287	0.046	- 0.151	0.015	- 0.079
Managers trained in negotiating skills	0.212	0.041	- 0.008	- 0.024	0.036
Evaluation of expected outcomes (probability)	- 0.003	0.352	- 0.002	- 0.109	0.028
Comparison with risk profile of past projects	0.031	0.236	0.040	0.160	- 0.204
Individual manager to champion and be responsible	0.034	- 0.043	0.007	- 0.010	0.379

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Component Scores.

3j – Pattern Matrix

	Component				
	1	2	3	4	5
Managers who respect superiors' opinions	0.690				
Managers with very different skills	0.685				
Personal agendas	0.593				
Managers trained in negotiating skills	0.591				
Brainstorming	0.568				
Evaluation of expected outcomes (probability)		0.725			
Financial projections		0.669		0.536	
Industry's rule of thumb		0.603			
Comparison with risk profile of past projects		0.500			
Knowledge of strategy formulation			- 0.831		
Managerial experience			- 0.740		
Knowledge of competitors			- 0.692		
Temporary alliances or subgroups formed				0.625	
Individual manager to champion and be responsible				0.575	
Comparing & contrasting new with previous					0.706
Informal discussions & interactions					0.603
Views of companies top management					0.592
Managers who are socially compatible	0.466				0.509

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

[a] Rotation converged in 21 iterations.

3k – Structure Matrix

	Component				
	1	**2**	**3**	**4**	**5**
Managers with very different skills	0.716				
Managers who respect superiors' opinions	0.673				
Managers trained in negotiating skills	0.649				
Brainstorming	0.622		-0.468		
Personal agendas	0.594				
Managers who are socially compatible	0.554				0.539
Evaluation of expected outcomes (probability)		0.746			
Financial projections		0.662		0.487	
Industry's rule of thumb		0.605			
Comparison with risk profile of past projects		0.598			0.505
Knowledge of strategy formulation			-0.833		
Managerial experience			-0.745		
Knowledge of competitors			-0.702		
Temporary alliances or subgroups formed				0.683	
Individual manager to champion and be responsible				0.630	
Comparing & contrasting new with previous					0.722
Informal discussions & interactions					0.625
Views of companies top management					0.595

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Appendix 4 – SID Interview Protocol

INTRODUCTION

- **General introduction to researcher, affiliation, etc**.

- **Introduction to the study**

  This study focuses on involvement of managers in strategic investment decisions (SIDs). The questions will specifically explore:

  – The SID process in the company
  – The achievement of consensus during SID making
  – How you assess risk and evaluate return associated with SID making
  – The knowledge and experience of managers involved in SIDs
  – The use of brainstorming and different frames of reference to aid decision making
  – Behaviour of managers during SID making
  – How typical the SID process is to the company and suggestions for improvement

  The questions comprises questions requiring you to compare the SID process in your company with the investment appraisal model which you have in front of you, and open-ended questions to allow me gain a full understanding of how managers in your company get involved in SIDs, how they behave during SID making and what influences their involvement in SID making.

- **Confirmation of consent to tape-record the interview**

  Would you have any objections to the interview being tape-recorded? This would enable our conversation to flow smoothly and allow me to listen carefully and achieve maximum benefit from the interview. It will also ensure that the accuracy of the data collected is preserved.

- **Reiteration of confidentiality and anonymity**

  As I explained in the letter accompanying the survey questionnaire and my email confirming the interview, confidentiality is assured for all participants. No data will be linked with any individual manager or organisation. The research interest is in establishing the nature of managerial involvement across managers and organisations and not in individual cases.

PART A – Background Information (Interviewee profile and operational and strategic context)

(*To allow optimal utilisation of the interviewee's time relevant background information already provided in the response to the questionnaire were not asked for. Contextual information that can easily be obtained from publicly available sources was also excluded.*)

Q1 Could you please describe your job?

Q2 What sort of strategic decisions are made in your organisation?

Q3 How would you explain your level of involvement in the SID process?

Q4 What proportion of time do you on average give to the SID process?

Probe for *explanation of the proportion of time given.*

Q5 Can you please describe your contribution to the SID process in your company?

PART B − The SID process and involvement of managers

Q6 The following set of questions asks you to compare the investment appraisal model with the SID process in your company.

(a) How representative is the model of the SID process in your organisation? Why or why not?

Probe for detail:
In what way is it similar to the SID process in the company?
In what way does it differ from the SID process in the company?

(b) Are there any other key stages that apply in your organisation and are not depicted by the model?

Probe for detail:
Can you please describe the stages?

(c) Of the stages of the SID process in your organisation, which ones are you involved in?

Probe for detail:
Can you describe how you are involved?

(d) How do you generally serve and support the SID process?

Probe for detail:
Can you describe how you support the process?

PART C − Group and socio-political processes for achieving consensus

The following questions ask you about the achievement of consensus during the SID process in your company.

Q7

(a) At what stage(s) do you use brainstorming?

Probe for detail:
What is it used for?
Does the organisation encourage the use of brainstorming?
How does it encourage this?

(b) At what stage(s) do you compare and contrast the current SID with previous projects?

Probe for detail:
What is it used for?
Does the organisation encourage managers to compare and contrast?
How does it encourage this?

Q8

(a) Do you interact with other managers during the SID process?

Probe:
Who do you interact with, within and outside the organisation, during the SID process?
At what stages of the process do you interact with managers involved in the SID?
How do you interact with managers within your organisation?

(b) How do you interact with managers within your organisation?

Probe for detail:
How important are the interactions to you?
How important are the interactions to the company?
Who are the dominant characters?

(c) Focussing for a moment on consensus during the SID process, how is it achieved during the SID process in the company?

Probe for detail:
How involved are managers with very different skills in gaining consensus?
How involved are managers who respect superiors' opinions in gaining consensus?
How involved are managers trained in negotiating skills in gaining consensus?
How involved are managers who are socially compatible in gaining consensus?
How often do you use brainstorming to achieve consensus?

(d) How do you interact with managers or people from outside your organisation?

Q9 How long does the whole SID process take in your organisation?

Q10 Are there managers who become psychologically committed to the SID?

Probe for detail:
How do they become psychologically committed?
When do they become committed?
How long are they committed compared to the length of SID process?

Q11 What happens when managers become aware of new information on the SID?

Probe:
How is the lessons learnt during the SID process fed back into the process?
Can you describe how this is done in relation to the stages of the SID process identified in Q7?

PART D − Risk analysis and evaluation of returns within the organisation

The following questions ask you about assessment of risk associated with the SID and evaluation of expected return from the SID.

Q12 What sort of risk analysis is undertaken in your organisation as part of the SID process?

Probe: *How significant is risk analysis?*

(a) Who is responsible for identifying the risk?

Probe for role:
What is your role in the risk analysis conducted by your organisation?
How do you perform such roles?

(b) Do you apply evaluation of expected outcomes (based on probabilities or likelihoods of alternative outcomes) to assess risk?

Probe for detail:
At what stage(s) of the SID process?
What do you see as the main reasons for the evaluation?

(c) Do you use financial projections?

Probe for detail:
At what stage(s) of the SID process?
What do you use the financial projections for?

(d) Do you apply industry's rule of thumb to assess risk?

Probe for detail:
At which stage(s) of the SID process?
How significant is the use of industry's rule of thumb?
Why else do you use industry rule of thumb?

(e) Do you use risk profiles of past projects to assess risk?

Probe for detail:
At which stage(s) of the SID process?
How significant is the use of the risk profiles of past projects?

PART E − Application of knowledge and experience during the SID process

The following questions ask you about application of knowledge and managerial experience during the SID process in your company.

Q13 Can you identify the knowledge you draw upon during the SID process?

Probe for: *How significant is the knowledge of strategy formulation to the SID process? Why?*

Q14 Do you apply managerial experience when making judgement on the SID?

Probe for: *How significant is managerial experience to the SID process? Why?*

Q15 Does your company have a **SID procedures manual**?

Probe for detail:
Is it possible to obtain a copy of the manual?
What other written material does the company have to aid the SID process?

Q16 Does the company use any decision support system during the SID process?

Probe for: *Which ones? How significant are such systems to the SID process?*

Q17 Do you anticipate your competitors' response to your SID?

Probe for: *How significant is the knowledge of competitors?*

PART F − Influences on managerial judgement during the SID process

The following questions ask you about managerial judgement during the SID process in your company.

Q18 Do you compare and contrast new project opportunities with similar projects you were previously involved during the SID process?

Probe for: *How significant is such comparison and contrasting in influencing your judgement during the SID process?*

Q19 Do you participate in informal discussions and interactions with managers not involved in the SID?

Probe for: *How significant is informal discussions in influencing your opinions during the SID process?*

Q20 Do top management express their views during the SID process?

Probe for: *How significant are top management's views in influencing your opinion of the SID?*

Q21 Can you please describe any other factors that may influence your managerial judgement during the SID process?

PART H − Occurrences of socio-political processes during the SID process

The following questions ask you about occurrences of socio-political processes during SID making in your company.

Q22 Are you aware of managers forming temporary alliances specifically for the purposes of the SID under consideration?

Probe for detail:
Do temporary alliances occur? How likely are they to occur? Why?
At what stages of the SID process do managers form alliances?

Q23 Are you aware of managers pursuing personal agendas during the SID process?

Probe for detail:
Do personal agendas occur? How likely are they to occur? Why?
At what stages of the SID process do managers pursue personal agendas?
What is the effect of personal agendas on the achievement of consensus?

Q24 Does your organisation require an individual manager to champion and be responsible for the SID?

Probe for detail:
What do you see as the major role(s) of the champion(s)?
How significant are the roles of the champion to the SID process?

PART G − Any other comment(s) on the SID process in your organisation

The final question relates to other comments on the SID process in your company that you may have.

Q25 Do you have any other comment(s) you would like to make on the SID process in your company?

Probe as appropriate

Appendix 5

Template for Case by Case Analysis

1 CONTEXTUAL FACTORS

1.1 Operating Context
- 1.1.1 Organisational culture (cultural conformity)
- 1.1.2 Business organisational structure (design)
- 1.1.3 Management style

1.2 Strategic Direction
- 1.2.1 Investment Philosophy
- 1.2.2 Policy
- 1.2.3 Strategy (organic growth, acquisition, restricted growth

1.3 Industry factors
- 1.3.1 Organisation's position within the industry
- 1.3.2 SID trends within the industry

1.4 Typology of SIDs
- 1.4.1 Product-related
- 1.4.2 Non-product

1.5 Profile of Managers
- 1.5.1 Decision makers' characteristics

2 NATURE OF SID PROCESS

2.1 SID Stages
- 2.1.1 Complexity
- 2.1.2 Knowledge Adjustment

2.2 Hierarchy of Managers Involved
- 2.2.1 Selection of managers
- 2.2.2 Profile of managers

2.3 Group Decision Support
- 2.3.1 Software
- 2.3.2 Function

3 MANAGERIAL JUDGEMENT

3.1 Psychological influences on judgement
- 3.1.1 Knowledge & Experience
- 3.1.2 Anchoring & Adjustment
- 3.1.3 Availability

3.2 Reaction to SID information
- 3.2.1 Organisation's requirement for presentation (structuring) of SID information
- 3.2.2 Information emphasised

3.3 Team & Group Processes
- 3.3.1 Group Decisions
- 3.3.2 Group Socio-political Process

3.4 Assessment of Risk & Return
- 3.4.1 Risk evaluation techniques
- 3.4.2 Techniques for Evaluation of Expected Returns
- 3.4.3 Industry Rule of Thumb
- 3.4.4 Risk Profile of Past Projects

Appendix 6 – Extract of Analysed Transcript

PART B – The SID process and involvement of managers

Q6 **The following questions ask you about the achievement of consensus during the SID process in your company.**

1 2 **(e)** How representative is the model of the SID process in your organisation? Why or why not?

1.1 2.1 *I would not say yes to that … this model just … looking at it does look very sophisticated it belongs to bigger organisations. This is one man band business, so the model doesn't apply to us at all. We don't use models like this when we make our strategic investment decisions. So … generally … this would not apply to us. But … it might apply to us in a very slight way.*

In what way does the model differ from the SID process in the company?

1.1.1 *The process we go through is that, which is very typical of a one man business. You have the director would conceive an idea or may be someone tells him that it is lucrative to go into this kind of business and if he is happy with it he then goes on with it. Just a typical one man business and if you are fortunate, you are consulted and you are spoken to about it and you give your ideas and sometimes he takes them on board and sometimes he doesn't.*

2 3 **(f)** Are there any other key stages that apply in your organisation and are not depicted by the model?

2.2 3.2 3.3 *Most employees do not get involved in stages 1 to 5 of the model. They don't really get involved so all these stages are taken care of by the director, so sometimes, because you are an accountant, you are told to put the financial data together. That is when you probably come in, and again you are being asked to do this with very minimum information and because the information presented before you is very minimal, you probably end up there.*

Probe for detail:
Can you please describe the stages?

2.1.1 *The stages in the company are similar to stages 1 to 5 of the model, and in addition we have a stage when we promote the project, if initiated by the MD, he sells the project to the managers, and where it is coming from the Operations Manager we sell it to the MD. The MD then authorises money to be spent on the project before it is implemented.*

2 3 **(g)** Of the stages of the SID process in your organisation, which ones are you involved in?

2.2 3.2 3.3 *Estimation of cash flows (financial data)*

Probe for detail:
Can you describe how you are involved?

2.2.1 3.2.1 *… again … sometimes you are told that we are going to do this: for instance we are going to America … to set up a new branch in America, can you give us a cash flow estimate in terms of what the turnover would be and this and that … what the expenditure would be, something like that. So may be you try to draw something like that. But the information you provide is some kind of guidelines … yea some kind of a guideline … like a budget to say you are into this venture, I think you should restrict yourself to investing this much at*

this stage … that is for the first 6 months, do this, for the next six months, do that; and you if the turnover is not this and that, I think you should pull out. Something likes that, but you are not really involved in it. 3.3.1

1 2 3 **(h)** How do you generally serve and support the SID process?

1.2 2.2 3.1 *As I told you earlier I am usually called upon to provide cash flow estimates.* 2.2.1

3.2

Probe for detail:

3.4 *Can you describe how you support the process?*

2.2.1

I usually get involved at the project promotion stage (sign of discomfort talking about this) 3.1.1 *and that is why I said I apply gut feeling, and I did say that, the reason why that is, is I can only do this estimation based on gut feeling because of the minimum information that is presented to me.* 3.2 *The information that is before me is usually very minimal so I don't really have these values from previous projects and tolerance ranges. Again if I did, it has got to be something that is coming from my head; it is not an organisational set one, so it is something that I pluck out of the tree.* 3.1.2 3.1.1 3.1.3

Do you assess the project with a minimum expected return in mind?

3.4.2 *I don't really think we do that, because if we did that we probably would not be in most projects that we are currently involve in. I don't think we do, so I feel that … sometimes it is beyond financial reasons… I don't know sometimes I don't feel that we got into the projects we got into for financial reasons. I think sometimes it is beyond that, but what it is I don't' know.* 3.4 *People have various reasons why they invest; some people can invest, because they want … like some people may invest in Sudan for charitable or ethical reasons.* 1.2.1 *Unfortunately that is not known to me, but I believe that some of the investments we have gone into were not for profit reasons.* 1.2.2

PART C – Group and socio-political processes for achieving consensus

The following questions ask you about the achievement of consensus during the SID process in your company.

Q7

1 3 **(c)** At what stage(s) do you use brainstorming? 3.3

1.1 3.3 *Brainstorming would come in may be at the progression through the company presenting to the senior managers … formal evaluation of the project using this and that and that.*

3.2

Probe for detail:

3.4 *What is it used for?*

3.3.1

3.4.2 *We don't use any technique to evaluate the project but there are points when, informally, senior managers are being told about the project in a very informal way, your opinions are now really needed, but you are being told …* 3.3.1 *or you will become aware of the project at some point, maybe through the director or someone else, so when you become aware of the project you informally do a little bit of brainstorming.* 3.2

Does the organisation encourage the use of brainstorming?

1.1.1 *No it is done informally.*